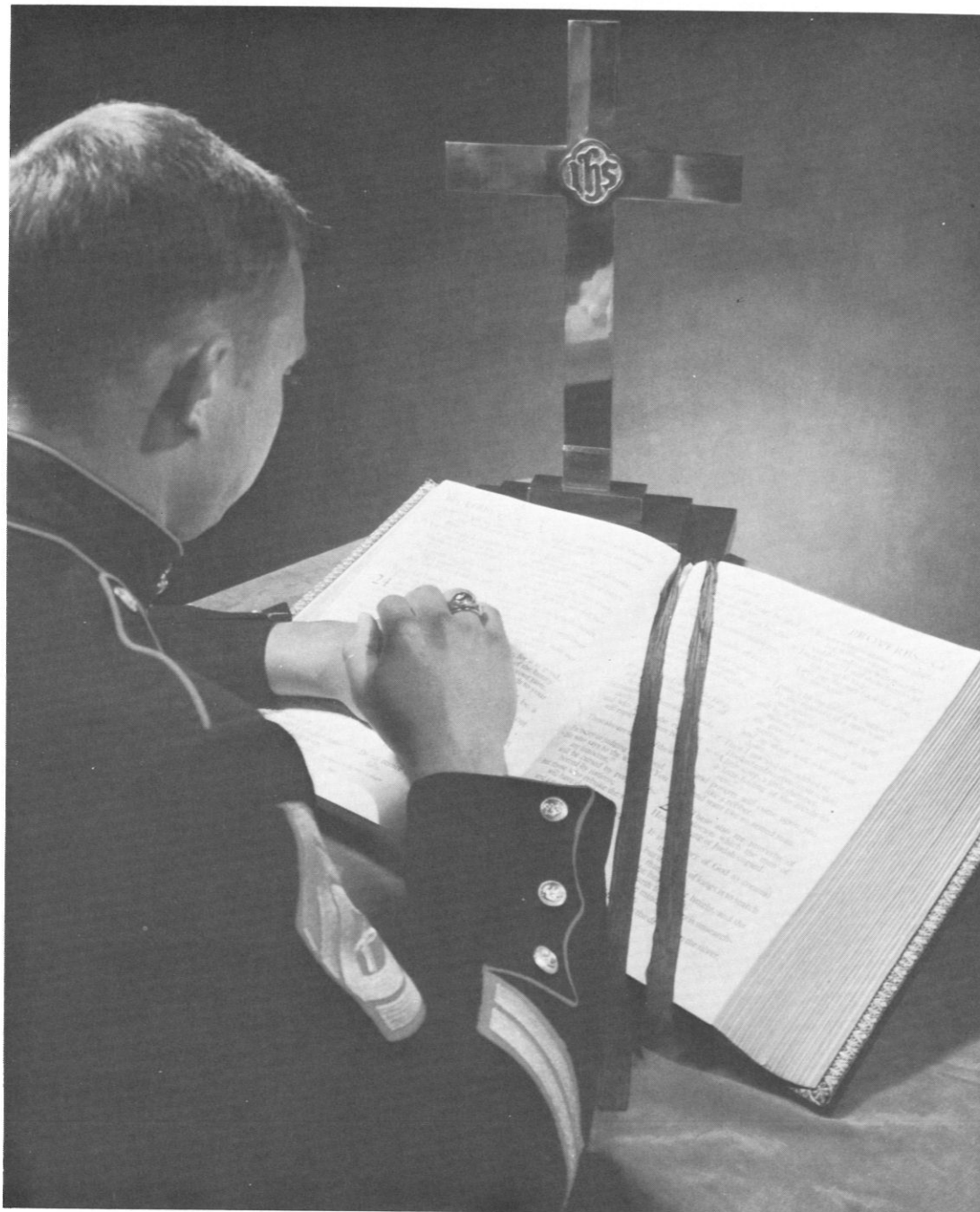




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C O N T E N T S

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The front cover chapel scene was photographed by SSGT J.L. Blick, USMC; Headquarters U.S. Marine Corps, Marine Corps Photography, Combat Pictorial Branch. It was obtained through the courtesy of PAO, Marine Barracks, Washington, D.C.

Page 2 photograph reveals VADM George M. Davis, MC, USN, Surgeon General (center); and RADM Ralph E. Faucett, MC, USN (left), BUMED Assistant Chief for Research and Military Medical Specialties, during a visit to Naval Medical Research Unit No. 3 in Cairo, Egypt. The photo was tailored for this occasion by HM1 Donald R. Poorman, USN, Photography Division of the Medical Graphic Arts Dept. of the Naval Medical School, NNMC, Bethesda, Md.

Technical support in graphic arts rendered by Mrs. S.B. Hannan, Code 4542, BUMED, is gratefully acknowledged.

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from the Chief

"Joy to the World," "Peace on Earth," and "Good Will Toward Men"! How can we reconcile these pretty phrases with the world as we know it?

Enveloped by the array of holiday confections and dietary excesses, how can one really grasp the true spirit of Christmas? Can love be purchased for the price of a substantial gift collection arranged under the traditional family tree? Have toys and gifts, the holiday games on television, and the annual round of seasonal parties displaced the spirit of Christmas?

In a sense Christmas cannot be fulfilled until all people, everywhere, find some form of expression deep in their souls, for a sincere desire to be of service to their fellowman. Should our professional duties remove us, even temporarily from the family festivities, is the absence resented as an unreasonable imposition? What have we as individuals done to see that our profession is respected and honored? What do we know of our children's sense of values? Is our influence positive?

The leadership expected of this great Nation is not a responsibility of the church, the schools nor the government. It is your responsibility as an American. Christmas is indeed a time for giving but give something of lasting value, your living example.





DEPARTMENT OF THE NAVY
ASSISTANT CHIEF OF THE BUREAU OF MEDICINE AND SURGERY FOR DENTISTRY
AND
CHIEF OF THE DENTAL DIVISION
WASHINGTON, D. C. 20390

CHRISTMAS GREETINGS

In a world beset with trials and tribulations and in a time of changing attitudes and values, each of us should seek a full outpouring of God's grace on this Christmas Day. May the gift of abiding faith act to bring men to their full dignity so that they will give substantive meaning to expressions of their brotherhood.

To each of you and your loved ones, I extend sincere best wishes with the hope that the spirit of this Christmas Day will prevail not only during this holiday season, but also throughout each day of the New Year.

Merry Christmas and a Happy New Year.

E.C. RAFFETTO
Rear Admiral, DC, USN





Dark and lonely is the SILENT NIGHT

*By CAPT D. Earl Brown, Jr., MC, USN; Head, Neuropsychiatry
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Introduction

Prisoner of war survival statistics reveal that 12,000 survived out of 30,000 Army, Navy and Marine Corps members taken prisoner by the Japanese in World War II. During the Korean conflict, 3,000 survived out of 7,200 Americans taken as prisoners of war.

Relatively little has been written about prisoners of war, either in captivity or after release. This has always represented a type of human experience which nations have felt more comfortable suppressing. Ex-prisoners of war prefer to remain unvoiced, partly in order to repress unpleasant feelings associated with their experiences. The ex-POW experiences an uneasy feeling that somehow he has lost self-prestige in the process.

POW in Captivity

The first response of the captured prisoner of war is one of confusion, bewilderment, and a sense of unreality. This is not only situational, but is also related to a sudden breakdown of one of the primary mental defense mechanisms necessary to endure combat. That defensive is denial, and it is extremely important to those who are in any dangerous situation. When this defense breaks down, there is an overwhelming feeling of helplessness and defenselessness.

The prisoner fears that he will be regarded as a failure, that he showed insufficient courage or skill, and perhaps he should have died while fighting. Modern man stresses the importance of sacrificing one's life for freedom. "Last ditch stands" to the death, when the

cause is good, have been glorified. This creates a problem for the prisoner of war because there are no guidelines to resolve the conflict between the concepts of fighting to the last man, and surrendering to preserve one's life. Of course, self-preservation is the older and stronger force.

Following the initial period of intense shock, the prisoner of war experiences fluctuating feelings of extreme fear, hostility and depression. Any direct expression of hostility will bring dire results and therefore must be suppressed. Some hostility is ventilated through fantasy of retaliation and at times by covert expression. The object of hostility fluctuates from the captors to those considered responsible for the prisoner's situation — the CO, the government, the President, etc.

In captivity the emotional disorders encountered are primarily those characterized by apathy, withdrawal and depression. Psychoses are uncommon and when they occur, they usually result in death. Psychoneuroses other than depression are unusual. Suicide is rare.

Fear of the Unknown

Maintaining fear of the unknown is an effective mode for handling prisoners of war. Fear of the unknown is skillfully employed by Oriental captors and it has been used extensively in Vietnam. Many accounts have been recorded which reflect the fluctuating attitudes, inconsistent responses, veiled and not so veiled threats, and skillful manipulations designed to

maintain the threat of extreme violence. This, of course, places a tremendous psychological pressure on the prisoner of war. The prisoner is made to feel emotionally isolated. It is difficult to validate his beliefs, attitudes and values through meaningful interaction with other men at a time when these values are under attack from many sources. The technique is especially effective in dealing with American prisoners who throughout their lives have come to expect some sort of feedback from their environment and who are used to expressing their ideas in order to validate them.

Hardships and Indignities

Being forced to stand or sit at attention for very long periods, a maneuver which we know has been used by the North Vietnamese, is an effective coercive measure. It forces the prisoner to act against himself, as opposed to pitting himself directly against the interrogator who is actively torturing him. These measures induce feelings of self-doubt and inadequacy, rendering the prisoner of war increasingly susceptible to the influence of the interrogator.

In Korea, severe material hardships of the march north and the primitive conditions in temporary camps rendered prisoners of war apathetic, disorganized and demoralized; many just curled up and awaited death. When you add the psychological pressure to the malnutrition, sleep deprivation, illness, forced physical work, isolation, cold, heat, insects, foul odors, inadequate clothing, miserable and insufficient food, boredom, and physical and moral abuse — the recorded death rate is more understandable.

Under such conditions a man is changed. Research studies have revealed that sleep deprivation alone causes a variety of behavioral, psychological, autonomic and chemical changes. Prolonged sleep deprivation results in behavior indistinguishable from paranoid schizophrenia or a confusional delirium. Isolation alone produces impaired perception, attention and concentration difficulties, and emotional instability. Hungry men are often reduced to attitudes and actions incompatible with their own previous levels of behavior and self-respect.

Therefore, almost all ex-POWs carry guilt feelings which are usually suppressed but which cause later problems. A hero's welcome upon release aggravates these problems and a repatriated prisoner of war is not emotionally ready for fanfare for some time after release. The carnival-type atmosphere surrounding the release of the prisoner of war in Korea aggravated and precipitated many problems among the repatriates.

The Prisoner of War Repatriated

A study of repatriated Korean POWs disclosed an initial period of apathy, blandness, and lack of interest, succeeded within a few days by mild euphoria and considerable confusion. These repatriated prisoners were also preoccupied with uncertainty concerning their reception at home and for many the apprehension persisted for weeks.

KZ Syndrome

Studies of ex-prisoners of war in other countries have resulted in consistent findings characterized by the label, "Concentration Camp Syndrome" (or KZ Syndrome). The symptoms of this syndrome include increased fatigue, dysphoria (mental anxiety, impatience, restlessness), impairment of memory, emotional instability, impairment of sleep, decreased self-esteem, loss of initiative, irritability and difficulty concentrating, vertigo, various somatic symptoms (gastrointestinal most common) and headache. Various studies (for instance, Norway and Denmark) have concluded that between 75 and 85% of former prisoners of war suffer from the Concentration Camp Syndrome. Within the prisoner of war who survives, the admixture of despair, hostility, and anxiety deposits emotional scars which will effect him for the rest of his life.

The cause of the Concentration Camp Syndrome is unknown. Some feel that it is organically based, others emotional. Probably it is the result of a combination of organic and emotional factors.





Readjustment Problems

During captivity the prisoner of war constructs an idealized fantasy of home. Family, friends, associates, work, the government, etc., are expected to be quite different from what they really are. In captivity many men have overextended their abilities to tolerate disappointment, hardship, and frustration. Therefore, they have already depleted their personality resources by the time of release. When the released prisoner of war arrives home he finds little understanding: family hardships matched against his personal hell; estranged wives; children who don't know him, or worse don't even like him; changed economy, styles, work situation or service; physical disabilities; troublesome feelings of guilt; chronic depression, headaches and fatigue; and a confused picture of himself "as part hero, part coward, part oddity and part modern version of Rip Van Winkle," to quote one former POW. The repatriate experiences feelings of discouragement, futility, hostility, and withdrawal. Overuse of alcohol is frequent. In repeated studies of repatriated prisoners, the observed incidence of emotional disturbance and mortality have been significantly high.

Mortality Rates

In a follow-up study of repatriated American prisoners of war from World War II and Korea performed by the National Research Council, mortality rates were tabulated for prisoners of World War II, Korean war prisoners, and matched control groups. Some studies were conducted as much as ten years following repatriation.

Pacific prisoners from World War II averaged an initial 50% excess of deaths as compared with the expected U.S. rate, and the death rate did not decline to the

usual range for ten years following release. A compiled death rate for Korean prisoners resembled that of the Pacific World War II prisoners. On the other hand, the mortality rate compiled in the case of European prisoners was lower than the ordinary rate for U.S. males.

One might suspect that the excessive mortality rate would be attributable to residual injuries, deficiency and infectious diseases. However, the most common cause of death was trauma. Mortality ascribed to accidents, suicides, or homicides accounted for about 40% of all deaths during follow-up, and for 50% of the deaths in the younger Korean War prisoner groups. Suicide was 30% more frequent in these groups than in the controls. Mortality ratios for all traumatic deaths were significantly greater in the Pacific and Korean prisoner groups than in the control group, whereas the mortality ratio for trauma was less than expected in the European prisoner group. The rest of the excessive deaths were due mostly to tuberculosis and cirrhosis of the liver, with a few related to arteriosclerosis and other diseases of the circulatory and renal systems. Tuberculosis deaths occurred early in follow-up.

We must be prepared to provide for the repatriates from Vietnam a much more intensive and extensive rehabilitation program. Such a program must take into account the large suicide rate to be expected initially and the chronic problems which typically last for many years. Assistance for the entire family must also be provided.

Families of Prisoners of War

It is a tremendous burden today for a mother to raise a family single-handed. The wife has the sole responsibility for the development of the children. She must make daily decisions on her own, but constantly has the feeling that she will be held accountable to her husband, when he is released, for whatever happens to the children. The wife has a continuous struggle with problems of self-esteem. She receives no satisfactory feedback from her environment. There are few acceptable ways for her to enhance that self-esteem.

She suffers from boredom with the same routine day in and day out, with no end in sight. POW family organizations have been very helpful to the wives, providing a channel for energy plus an acceptable social outlet. A woman alone is awkward socially at best, and any satisfactory social activity may at the same time engender troublesome guilt feelings. There is of course no acceptable outlet for normal sexual drives. Whatever the wife does, she is burdened with a sense of guilt.

The wife idealizes her husband's return. She believes that once he is released, her problems will be resolved and everything will be perfect. In actuality she is due for a tremendous letdown, since a new series of problems will arise at that time. Even the most stable and mature wives experience the emotional problems and difficulties which have been described. The best approach we have been able to provide for such problems thus far has been that of group psychotherapy, in areas where groups of POW wives reside. Much more needs to be done. Our plans must now

1. Nefzger, M.D.: Follow-up Studies of World War II and Korean War Prisoners. *Am J Epidemiol* 91:123-138, 1970.
2. Strom, A.; Refsum, S.B.; Eitinger, L.; Gronvik, O.; Lonnum, A.; Engeset, A.; Osvik, K.; and Rogan, B.: Examination of Norwegian Ex-Concentration Camp Prisoners. *J Neuropsychiat* 4:43-62, Sept-Oct 1962.
3. Eitinger, L.: Pathology of the Concentration Camp Syndrome. *Arch Gen Psychiatry* 5:371-379, Oct 1961.
4. Eitinger, L.: Concentration Camp Survivors in the Post-war World. *Am J Orthopsychiatry* 32:367-375, April 1962.
5. Eitinger, L.: Preliminary Notes on a Study of Concentration Camp Survivors in Norway. *Isr Ann Psychiatry (Jerusalem)* 1:59-67, April 1963.
6. Nardini, J.E., M.D.: Survival Factors in American Prisoners of War of the Japanese. *Am J Psychiatry* 241-248, Oct 1952.
7. Nardini, J.E., M.D.: The William C. Porter Lecture, 1961: Psychiatric Concepts of Prisoners of War Confinement. *Milit Med* 127:299-307, April 1962. 帶



7

Posttraumatic Acute Acalculous Cholecystitis

In Evacuees From The Vietnam Conflict

By CDR Martin L. Fackler, MC, USN, and
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During a three-month period in mid-1969, at U.S. Naval Hospital Yokosuka, Japan, four cases of acute posttraumatic acalculous cholecystitis were treated. All cases were males, ranging in age from 19 to 29 years, who had been evacuated from Vietnam. Multiple system injuries were present in every case including some form of intra-abdominal trauma for which laparotomy was performed.

Clinical Features

The time interval between the initial trauma and the development of cholecystitis ranged from three to five weeks. In every case, increased abdominal pain, leukocytosis, and increasing fever were present. The antecedent trauma, especially the previous abdominal surgery, tended to obscure and confuse the clinical picture.

This paper was presented in modified form at the CINCPAC Fifth Conference on War Surgery held in Tokyo, Japan, 29 March to 2 April 1971.

The opinions and assertions contained herein are those of the authors and are not to be construed as official or reflecting the views of the Navy Department or of the naval service at large.

All of the cases were either receiving intravenous alimentation at the time of the development of the cholecystitis or had recently been on a regimen of prolonged parenteral alimentation and were taking only limited amounts of nourishment orally.

At operation the acute cholecystitis was the only new pathology found in two of the cases. In the other two patients, intra-abdominal abscesses associated with various perforations of the gastrointestinal tract were also found. The gallbladder had not perforated in any case, but was gangrenous in two of the four patients. In all cases the gallbladder contained a thick, concentrated, viscous bile. Cultures of this bile were uniformly negative for bacterial growth. No calculi were found in any of the gallbladders. In two of the cases, the operating surgeon noted that the cystic duct was of very small caliber, but in no case was there any extrinsic compression of the cystic duct.

Complications

Three of the patients recovered. One patient died on the 13th postoperative day because of severe sepsis and generalized, diffuse, uncontrollable hemorrhage.

Although the cholecystitis contributed to his death, other aspects of his multi-system injuries were felt to be the more lethal factors.

In two of the cases major complications of the previous abdominal surgery were found at the time of cholecystectomy. In the other two patients the cholecystitis presented following laparotomy which had been necessitated by the development of complications.

Discussion

Prior to 1947, only a few isolated cases of acute cholecystitis secondary to unrelated surgical procedures were recorded. Dr. Frank Glenn's report of 17 patients in whom acute cholecystitis followed a surgical procedure unrelated to the biliary tract, suggested that such an occurrence was more than coincidence.⁵

At the CINCPAC Fourth Conference on War Surgery held in Tokyo, Japan in February of 1970, personal communications with other military surgeons revealed that posttraumatic acalculous cholecystitis was not

uncommon in the patient population being medically evacuated from Vietnam. Almost all of these cases are males near their third decade of life.

In March 1970 eight cases of posttraumatic acalculous cholecystitis were reported from Brooke Army Hospital.¹³ Three of these cases occurred after laparotomy with a 16 to 33-day time interval between laparotomy and the development of the cholecystitis.

Subsequent reports revealed features of postoperative cholecystitis that were different from the classical form of the disease.^{2,10,14,17} "Fair, fat, fertile, and forty" is not the hallmark of postoperative cholecystitis. In Knudson and Zuber's series, 11 of 19 cases were males.⁸ Thompson, Ferris and Baggenstoss noted that 76 percent of their 98 cases were males.¹⁷ A ratio of two to one in favor of males seems to approximate the overall experience.

The absence of stones occurs in only five to ten percent of cases of classical cholecystitis. However, in postoperative cholecystitis the absence of stones ranges from 31 to 53 percent in various series.^{5,6,8,9,10,12,17,18}



RADM F.B. Voris, MC, USN (now retired) is pictured addressing the Commander in Chief Pacific (CINCPAC) Fifth Conference on War Surgery held 29 March – 2 April, 1971, in Tokyo, Japan. (Photo by HMC C. James, USN.)



The General Surgery Committee of the CINCPAC Fifth Conference on War Surgery is shown reviewing the Proceedings of the Fourth Conference. (Photo by HMC C. James, USN.)

Etiology

There are several factors which may contribute to the development of postoperative acute cholecystitis. The work of Gatch and co-workers,⁴ Morris et al.,¹¹ Thomas and Womak,¹⁶ and others, indicates that infection is not the cause of the cholecystitis. Bacteria instilled into a normal gallbladder have been found to cause no pathology.¹

Simply an increase in the concentration of bile salts within the gallbladder can result in the inflammatory picture seen in acute cholecystitis. The severity of the inflammation is roughly proportional to the bile salt concentration and the cystic duct may become obstructed by edema secondary to the inflammation.¹ However, it is difficult to consistently produce cholecystitis in the absence of some type of obstruction of the cystic duct.¹⁵ While ligation of the cystic duct with a normal concentration of bile in the gallbladder does not produce cholecystitis, withholding of food for 48 hours before ligation of the cystic duct may

induce the gallbladder to concentrate its contents sufficiently to produce acute cholecystitis.¹⁶

Biliary Stasis

Glenn showed that biliary stasis is a feature of the postoperative period.^{5,6} A period of fasting with no reflex release of cholecystokinin permits prolonged stasis of the gallbladder with concomitant increase in the bile salt concentration due to the continuing fluid and electrolyte resorption by the gallbladder wall.

Gullick dramatically demonstrated this postoperative biliary stasis by giving oral Telepaque (iodopanoic acid) on the night before surgery to 40 patients, then conducting daily abdominal X-ray examinations until the gallbladder was no longer visualized. The gallbladder did not empty its contents until after oral intake commenced in 37 of the 40 cases.⁷ The period of biliary stasis ranged from one to 16 days. On the basis of the results observed, he postulated that starvation-induced stasis may be a precipitating factor in the development of postoperative cholecystitis.

The work of Elam and McMaster indicates that the activity of the sphincter of Oddi is increased during starvation³ and it is well known that opiates and narcotics, especially morphine, contribute to biliary stasis by causing contraction of the sphincter of Oddi.

Stephenson and Nagel suggest that anatomic variants, such as a long or twisted cystic duct, may account for some of the cases of acute cholecystitis without stones.¹⁵ It is interesting to note that in two of our cases the operating surgeon made the observation that the cystic duct appeared to be of considerably smaller caliber than usual. Possibly in these two cases the unusually small cystic duct caused a relative obstruction making it impossible for the gallbladder to empty a thick, concentrated, viscous bile.

It would seem logical that patients who have been without oral intake for longer periods than usual and who have been requiring prolonged use of pain-relieving medications, should have gallbladder stasis for a longer period of time and be more likely candidates for development of acute acalculous cholecystitis. All four cases reported in this paper may be characterized as seriously ill patients who had complicated courses and would certainly fall within a higher risk category.

The development of cholecystitis in the above-mentioned type of patient is doubly treacherous since other problems generally coexist that could well explain the fever, leukocytosis, and abdominal pain. The difficulty in recognition of postoperative cholecystitis is borne out by the large number of cases discovered at autopsy as reported by Thompson.¹⁷

It is suggested that an increased awareness of the possibility of postoperative cholecystitis, especially in the patient who is already very ill, will lead to earlier operative intervention and a lower mortality rate.

Summary

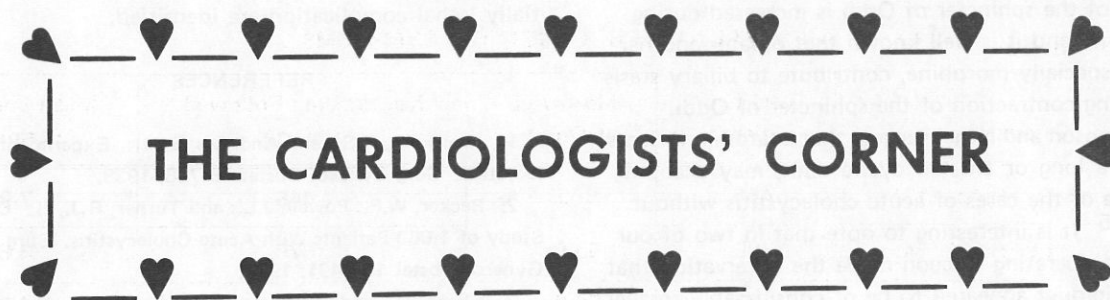
Four cases of posttraumatic acute acalculous cholecystitis are presented. Cholecystectomy was performed in all cases. The gallbladder was gangrenous in two, but not perforated in any of the cases. The patients were seriously ill and presented multiple complications; all had undergone previous laparotomies. Three of the patients recovered and one died.

The literature is briefly reviewed and probable

contributing factors in the development of this potentially lethal complication are identified.

REFERENCES

1. Aronsohn, H.G., and Andrews, E., II: Experimental Cholecystitis. *Surg Gynecol Obstet* 66:748, 1938.
2. Becker, W.F.; Powell, J.L.; and Turner, R.J., II: Clinical Study of 1,060 Patients With Acute Cholecystitis. *Surg Gynecol Obstet* 104:491, 1957.
3. Elman, R., and McMaster, P.D.: Physiologic Variations in Resistance to Bile Flow to Intestine. *J Exp Med* 44:151, 1926.
4. Gatch, W.D.; Battersby, J.S.; and Wakin, K.G., II: Nature and Treatment of Cholecystitis. *JAMA* 132:119, 1946.
5. Glenn, F.: Acute Cholecystitis Following Surgical Treatment of Unrelated Disease. *Ann Surg* 126:411, 1947.
6. Glenn, F., and Wantz, G.E.: Acute Cholecystitis Following Surgical Treatment of Unrelated Disease. *Surg Gynecol Obstet* 102:145, 1956.
7. Gullick, H.D.: Roentgenologic Study of Gallbladder Evacuation Following Non-Biliary Surgery. *Ann Surg* 151:403, 1960.
8. Knudson, E.J., and Zuber, W.F.: Acute Cholecystitis in the Postoperative Period. *N Engl J Med* 269:289, 1963.
9. Levin, J.F.: Death Due to Gangrenous Cholecystitis and Peritonitis Following Unrelated Surgery. *JAMA* 160:1040, 1956.
10. Levin, M.N.: Acute Cholecystitis Following Surgery Unrelated to Biliary Tract. *JAMA* 177:644, 1961.
11. Morris, C.R.; Hohf, R.P.; and Ivy, A.C.: Experimental Studies of the Role of Stasis in Etiology of Cholecystitis. *Surgery* 32:673, 1952.
12. Schwegman, C.W., and Demuth, W.E., Jr.: Acute Cholecystitis Following Operation for Unrelated Disease. *Surg Gynecol Obstet* 97:167, 1953.
13. Shaw, R.C.: Posttraumatic Acute Acalculous Cholecystitis in Young Males. *Milit Med* 135:210, 1970.
14. Sparkman, R.S.: Abdominal Emergencies Following Unrelated Surgical Procedures. *Ann Surg* 135:863, 1952.
15. Stephenson, S.E., Jr., and Nagel, C.B.: Acute Cholecystitis: An Experimental Study. *Ann Surg* 157:687, 1963.
16. Thomas, C.G., Jr., and Womak, N.A.: Acute Cholecystitis: Its Pathogenesis and Repair. *Arch Surg* 64:590, 1952.
17. Thompson, J.W., III; Ferris, D.O.; and Baggenstoss, A.H.: Acute Cholecystitis Complicating Operation for Other Diseases. *Ann Surg* 155:489, 1962.
18. Yedinak, P.R.: Acute Cholecystitis Following Surgery for Unrelated Disease. *Am Surg* 25:968, 1959.



THE CARDIOLOGISTS' CORNER

ANGINA PECTORIS

Clinical and Pathophysiological Aspects

By CDR Carl R. Bemiller, MC, USN, and
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The Cardiovascular Branch of the Internal Medicine Service at the Naval Hospital, Philadelphia offers a two-year Fellowship for training in the subspecialty. CDR Carl R. Bemiller is the director of this training program which combines a wide variety of clinical experience with active ongoing clinical investigation in cardiovascular disease. The research activities of this unit are supervised by LCDR Carl J. Pepine. The photo on page 13 shows Dr. Bemiller (left) and Dr. Pepine (right) discussing the results of cardiac catheterization studies.

Coronary atherosclerotic heart disease (CHD), the most common form of cardiac disease in the United States, has been the subject of intense study over the past decade. (1) Yet its Four Horsemen of Apocalypse — Angina Pectoris, Myocardial Infarction, Congestive Heart Failure, and Sudden Death — continue to maim and decimate our society at a rate of epi-

demio proportions. The clinician is regularly confronted with critical aspects of this major problem and must bring to the bedside a proficient application of timely concepts and information. The accepted basis for good management is a well performed, clinical examination. Failure to lay an adequate foundation for treatment is all too frequently encountered and has caused Tinsley R. Harrison to remark: "For every patient who can't give a good history there are ten physicians who cannot or do not take a good history." (2) Since cardiac pain is the most frequently and easily identified indication of CHD, the purpose of this paper is to review selected clinical and pathophysiological aspects of the cardiac pain syndrome in an effort to widen the perspective of the clinician.

A review of the prognostic implications associated with the diagnosis of angina pectoris is presented in Figure 1. An analysis of survival studies of patients with angina reveals that mean survival, following the symptomatic onset of angina pectoris, is 6.5 years. Approximately 50% of the patients remain alive five years after onset and 30% remain alive after ten years; in a normal population

The opinions expressed herein are those of the authors and cannot be construed as reflecting the views of the Navy Department or of the naval service at large.

Figure 1 — PROGNOSIS OF ANGINA PECTORIS
SURVIVAL AFTER ONSET OF SYMPTOMS

Reference	Total No. Patients	Mean Age at Onset	No. Patients Followed to Death	Mean Survival (Years)
1. White, P. D. (1943) (13)	497	56.5	445	7.9
2. Sigler, L. H. (1960) (14)	1700	55.8	679	4.6
3. Zoll, P. M. (1951) (15)	177	58.0	117	4.2
4. Richards, D. W. (1956) (16)	<u>456</u>	<u>—</u>	<u>445</u>	<u>9.4</u>
	2830	56.7	1686	6.5

of the same age, approximately 87% would be alive five years later and 70% would be living ten years later. (17)

Clinical Patterns of Angina

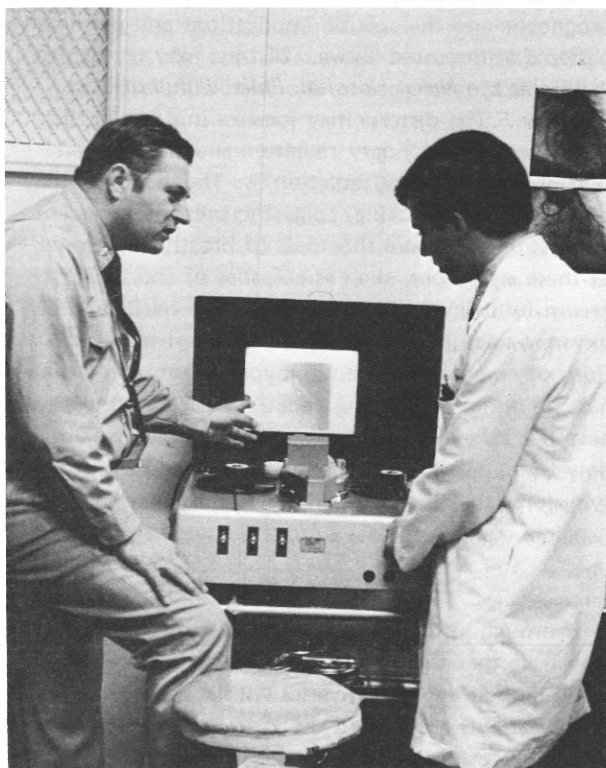
The symptom complex of angina pectoris as first described by Heberden, and later related to advanced coronary atherosclerosis by Hunter and Jenner, presents multiple facets that must be considered when evaluating patients. The typical clinical characteristics of this distressful sensation, its duration, distribution, variation, inciting factors, and accessory features have been thoroughly reviewed elsewhere. (2) We feel that historical recognition of three dominant patterns of angina pectoris is essential to a functional understanding of the pathogenesis, prognosis, and therapy of this problem. The three major patterns of cardiac pain are *initial angina*, *stable angina*, and *progressive angina*.

Initial Angina Pectoris

The recent onset of typical chest discomfort implies a significant change in myocardial oxygenation commonly related to advancing, localized or diffuse coronary artery disease. (3) Such patients deserve hospitalization for complete medical evaluation, including study for inciting factors (i.e. hypoglycemia, polycythemia, etc.) and treatment of aggravating factors (fever, emotion, etc.). Comprehensive exclusion of other factors known to influence angina should be accomplished. Among the common related disorders are anemia, obesity, hypertension, hyperlipidemia, and thyroid disease. The significance of a history of diabetes, smoking, other forms of vascular disease, or a family history of atherosclerosis cannot be overemphasized. The propensity for sudden death or myocardial infarction reaffirms the seriousness of this early symptom which warrants hospitalization to initiate appropriate diagnostic and therapeutic measures.

Stable Angina Pectoris

The patient's discomfort and diseased coronary circulation have been present for a longer period of time in this situation where angina is often produced by a known level of physical activity or emotional stress. There has been no recent change in frequency or duration of angina. Although the natural history of angina pectoris is incompletely understood, the clinical stability of this category of patients affords the physician adequate time for complete evaluation. Careful search for aggravating conditions can be rewarding. The authors have observed the frequent association of obesity



and angina pectoris reported by others, and the marked improvement that often occurs when the patient reduces. Since weight reduction is often difficult to achieve, success may well reflect a physician's ability to communicate with and motivate the patient.

Progressive Angina Pectoris

This state is characterized by an increase in frequency and severity of attacks, which may occur with less provocation and often under new circumstances. Clinical instability implies significant progression of myocardial ischemia with an ominous prognosis. Such patients can only be managed in a hospital environment or a cardiac care unit, when available. Complete medical evaluation and study for possible aggravating factors are mandatory. Cardiac catheterization studies including coronary arteriography are helpful. If the progressive course persists despite rest and other therapeutic measures, newer forms of therapy which are still investigative (i.e. aortocoronary by-pass surgery) may warrant consideration.

Anginal Equivalents

As a symptom arising from an acutely ischemic myocardium, angina may appear in several disguises, making recognition difficult. The masquerade results when one or more of the classical syndrome components are absent or atypical. Clinicians must be aware of these "anginal equivalents," for they have the same prognostic and therapeutic implications and dominant patterns as discussed above. Distress may be located in the neck, teeth, palate, shoulder, arm, back, or abdomen. The distress may localize initially in the usual areas of secondary radiation and then be felt substernally ("reverse radiation"). The sensation may be described as choking, epigastric pressure, "gas" or indigestion, or severe shortness of breath. (4) Some of these sensations, such as episodes of shortness of breath following mild exertion or large meals and paroxysmal nocturnal dyspnea, are frequent manifestations of an acutely ischemic myocardium. Even dizziness, fainting, "drenching sweat," nausea, and weakness have been documented as "anginal equivalents." It is only by detailed historical analysis of the patient's symptoms that the clinician will realize that an "anginal equivalent" has supplanted anginal pain.

Coronary Blood Flow (CBF)

Thorough history taking often identifies patients who note that their ability to perform work before being limited by angina, varies within wide limits. Some patients are able to do strenuous physical work indoors, yet are unable to slowly walk one block in

the cool outdoors without experiencing angina. Others note that they have difficulty initiating work or walking, but once their early angina is relieved, greater amounts of effort are tolerated as with a "second wind." Still other individuals can continue working at the same level which precipitated angina, however, their distress gradually decreases with a "walk through" phenomenon. Such capricious clinical behavior, in addition to the recently described group of patients who experience angina pectoris and present normal large vessel coronary anatomy, implies that factors other than coronary artery obstruction are important in the development of angina.

Myocardial Oxygen Consumption

A clearer understanding of these clinical problems is obtained if angina pectoris is regarded as a symptomatic expression of inadequate oxygen supply to the heart muscle (coronary blood flow, CBF) in relation to the myocardial oxygen needs (myocardial oxygen consumption). (5) Angina may be provoked by maneuvers which increase myocardial oxygen demand, the major determinants of which include heart rate, intramyocardial tension (ventricular pressure x radius), and the contractile state of the heart. A history of "racing heart beat" or "throbbing" in the chest or neck is important to elucidate an arrhythmia as an aggravating or precipitating factor in the production of angina. Complaints of "throbbing in the neck" of the aortic insufficiency patient, or detection of aortic stenosis or systemic hypertension by physical examination, alert the clinician to the presence of associated conditions which adversely influence angina. Diseases affecting cardiac contractility which produce a forceful heart beat (palpitation), such as thyrotoxicosis, often incite angina and are easily detected through a complete history and physical examination.

Other factors relating to CBF are less completely understood but are worthy of review. (4) As an aerobic organ, the heart extracts approximately 70% of the oxygen of coronary arterial blood, resulting in near equilibrium of capillary and coronary venous oxygen. The heart is capable of extracting little more oxygen, therefore, the ability of the myocardium to augment its oxygen supply for performing increased work is dependent upon changes in CBF. Some important determinants of CBF include aortic diastolic pressure, heart rate (or more specifically, duration of diastole when most left coronary flow occurs), and coronary vascular resistance. Clinical conditions which alter these factors can be deleterious to the angina patient. For example, in hypotensive or aortic insufficiency patients, the reduced pressure during diastole

will aggravate ischemia by reducing CBF. Tachycardia, like uncontrolled atrial fibrillation, reduces the time available for diastolic CBF and can evoke angina. Catecholamines, particularly beta adrenergic agents which markedly increase heart rate and intramyocardial arteriolar resistance, increase myocardial ischemia even in the absence of significant CHD. Patients with excess endogenous catecholamines (i.e. emotional disorders, fever, and pheochromocytoma) or those requiring these agents for blood pressure support, may develop severe refractory angina.

CBF Dynamics

Measurements of CBF have failed to demonstrate a reduced flow at rest in patients with significant CHD. Studies of the response to various forms of stress (exercise, tachycardia, or isoproterenol) which increase myocardial oxygen requirements have also failed to demonstrate impairment of CBF. Since many of these patients can sometimes perform increased work without angina, they must be capable of increasing oxygen delivery to their myocardium despite anatomic coronary artery obstruction. It is obvious that additional mechanisms must be involved.

Coronary blood flow to the left ventricle normally peaks during diastole and total flow is less during systole than during diastole. (6) This proportion is not fixed. During exercise and in certain pathologic conditions the systolic fraction may represent the major portion of total coronary flow. Myocardial oxygen delivery can therefore be altered not only by changes in total CBF, but also by redistribution of systolic and diastolic flow, which may be important in the pathogenesis of myocardial ischemia. Usually intramyocardial flow is dependent upon coronary arteriolar resistance, which is determined by myocardial wall tension and varies with the cardiac cycle, being maximal during systole and minimal during diastole. A tension gradient within the myocardial wall exists with higher tension located at the endocardial surface and lower tension at the epicardial surface. (7) Thus a transmural flow gradient is created resulting in an oxygen tension gradient (i.e. epicardial O_2 tension 15-20 mmHg > endocardial O_2 tension), and subendocardial lactate-pyruvate ratios higher than those near the epicardium. Under certain conditions, at a constant CBF, this gradient effects increased endocardial flow at the expense of the epicardium, or vice versa. The continuously changing intramural flow pattern is undoubtedly an important consideration in the pathogenesis of angina pectoris. Normal capillary flow is ultimately necessary for adequate myocardial oxygen transport and is related to capillary surface area, permeability, velocity

of flow and anatomic and functional capillary shunts. Since capillary clearance and CBF rates may vary independently, (one relating to myocardial nutrient flow and the other relating to total CBF), changes in total CBF do not necessarily reflect changes in myocardial oxygenation. Recent studies have demonstrated that CHD patients who develop an ischemic response (angina or electrocardiogram changes) exhibited significantly greater increases in myocardial blood flow (nutrient) than those who did not demonstrate ischemia. (8) Other factors which effect oxygenation of the myocardium have been identified, such as coronary "steal" (9), myocardial microcirculation (10), plasma kinins (11), and changes in hemoglobin-oxygen affinity. (12) Hopefully these observations will stimulate more investigation in the vast area of unresolved clinical questions.

Conclusion

The importance of an early, accurate diagnosis of angina pectoris has been emphasized by reviewing the serious prognostic implications. A simple classification of angina, based on the history of the present illness, consists of three categories: *initial angina*, *stable angina*, and *progressive angina*. The useful clinical application of this broad classification and selected concepts of coronary blood flow dynamics have been discussed.

Because of the psychological and sociological ramifications of clinically recognized CHD, a fallacious diagnosis of angina pectoris must be avoided. A future article will deal with the electrocardiographic, hemodynamic, and metabolic abnormalities associated with angina pectoris.

REFERENCES

1. Hurst, J.W. and Logue, R.B.: The Heart: Arteries and Veins. 2nd ed., McGraw-Hill, 1970.
2. Harrison, T.R. and Reeves, T.J.: Ischemic Heart Disease. Year Book Medical Publishers, 1968.
3. Keefer, C.S. and Resnik, W.H.: Angina Pectoris: A Syndrome Caused By Anoxemia of the Myocardium. Arch Intern Med 41:769, 1928.
4. Phibbs, B.; Holmes, R.W.; and Low, C.R.: Transient Myocardial Ischemia: The Significance of Dyspnea. Am J Med Sci 256:210-220, 1968.
5. Gregg, D.G. and Fisher, L.C.: Blood Supply To the Heart. In Hamilton, W.F.: Handbook of Physiology, Sec. 2, Circulation, Vol. II, pp. 1517-1584. Washington, Amer. Physiol. Soc., 1963.
6. Sabiston, D.C. and Gregg, D.E.: Effects of Cardiac Contraction on Coronary Blood Flow. Circulation 15:14, 1957.
7. Honig, C.R.; Kirk, E.S.; and Myers, W.W.: Transmural Distribution of Blood Flow, Oxygen Tension, and Metabolism:

Mechanism and Adaptions. International symposium on the coronary circulation and energetics of the myocardium. Basel and Karger, New York 1967.

8. Conti, C.R.; Pitt, B.; Gundel, W.D.; Friesinger, G.C.; and Ross, R.S.: Myocardial Blood Flow In Pacing-Induced Angina. *Circulation* 42:815, 1970.

9. Rowe, G.C.: Inequalities of Perfusion in Coronary Artery Disease (Coronary Steal). *Circulation* 42:103, 1970.

10. Fulton, W.F.M.: The Dynamic Factor in Enlargement of Coronary Arterial Anastomoses and Paradoxical Changes in the Subendocardial Plexus. *Br Heart J* 26:39, 1964.

11. Mason, J.; Conti, C.R.; and Coleman, R.W.: Observations of the Plasma Kallikrein System During Myocardial Ischemia.

Trans Assoc Am Physicians, (Philadelphia), 82:98, 1969.


12. Eliot, R.S. and Bratl, G.: The Paradox of Myocardial Ischemia and Necrosis in Young Women With Normal Coronary Arteriograms. *Am J Cardiol* 23:633-638, 1969.

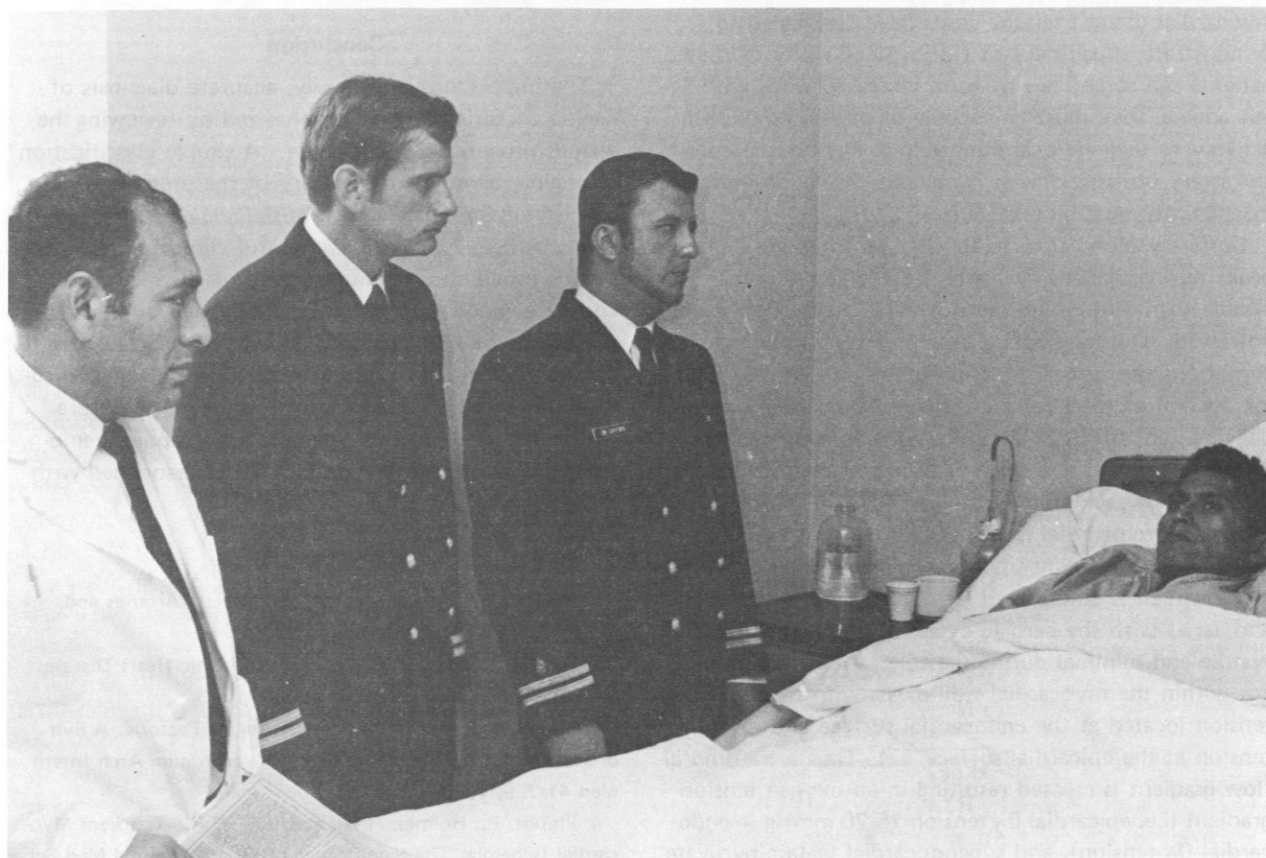
13. White, P.D.; Bland, E.; and Miskall, E.W.: *JAMA* 123: 801, 1943.


14. Sigler, L.H.: *Am J Cardiol* 6:252, 1960.

15. Zoll, P.M.; Wessier, S.; and Blumgart, H.L.: *Am J Med* 11:331, 1951.

16. Richards, D.W.; Bland, E.F.; and White, D.P.: *J Chronic Dis* 4:423, 1956.

17. Block, W.J.; Crumacker, E.L.; Dry, T.J.; and Gage, R.P.: Prognosis of Angina Pectoris. Observations in 6882 cases. *JAMA* 150:259, 1952. 



TWO CHARLESTON-BASED MEDICAL OFFICERS, LTs John Messenheimer (second from left) and Robert Gifford (third from left) examine a renal transplant patient at Centro Medico Naval Hospital in Callao, Peru. The doctors toured the Peruvian Navy hospital, which is a carbon copy of the Beaufort Naval Hospital in South Carolina, during the UNITAS XII visit to Callao/Lima from August 30 to September 4. Dr. Messenheimer is medical officer on the staff of Commander, Destroyer Squadron 6 and Dr. Gifford is a staff member of the Charleston Naval Hospital, assigned TAD as Task Force 86 medical officer. UNITAS XII is a five-month naval training exercise involving the United States and the major maritime nations of South America.—PAO; USCOM-SOLANT; FPO, N.Y. 

Acute Gynecologic Problems In Young Girls

Simulating Acute Appendicitis*

*By LT Paul J. Kovalcik, MC, USN, Resident in Surgery, Naval Hospital Boston; and
CAPT Scott G. Kramer, MC, USN, Chief of Surgery, Naval Hospital Boston,
Chelsea, Mass. 02150.*

Diseases of the uterine adnexa represent unusual causes of acute surgical abdomen in young girls. Most cases are incorrectly diagnosed preoperatively as acute appendicitis with, or without, perforation and abscess formation. We have seen three interesting cases of adnexal disease simulating acute appendicitis. The first case presented torsion of a dermoid cyst; the second, torsion of normal uterine adnexa; and the third case represented an isolated abscess of the right ovary.

Case No. One

L.L. was an 11-year-old girl who was admitted to the Naval Hospital, Newport, R.I., in November of 1966 with right lower quadrant abdominal pain, especially severe during the two days prior to admission. She had

undergone an appendectomy 18 months previously when a normal appendix was removed. She continued to experience episodes of crampy right lower quadrant abdominal pain thereafter which led to hospitalization on several occasions, but a diagnosis was never established. Recent barium enema and IVP (intravenous pyelogram) studies had revealed no abnormalities.

The physical examination was unremarkable except for a temperature of 101° and a diffusely tender abdomen, especially in the right lower quadrant, with rebound. No masses were palpated on rectal examination but tenderness on the right side was noted. The white blood cell count was 16,500/cu. mm. with a shift to the left. Urinalysis and chest X-ray studies were within normal limits. Abdominal X-ray examination revealed a paralytic ileus pattern with the suggestion of a density in the right pelvis.

Surgery was performed on the day of admission and a twisted right ovarian cyst was encountered. (See Figure One) The cyst measured 7 x 5 cm. and was gangrenous with a cystic center containing caseous material and hair. The pathologic diagnosis was dermoid cyst of the right ovary with infarction and hemorrhage. Recovery was uneventful.

*This paper was presented by LT Kovalcik at The Annual Spring Symposium conducted 13-14 May 1971 at Naval Hospital Boston, Chelsea, Mass.

The opinions or assertions expressed in the above article are those of the authors and are not to be construed as official or reflecting the views of the Navy Department or the naval service at large.

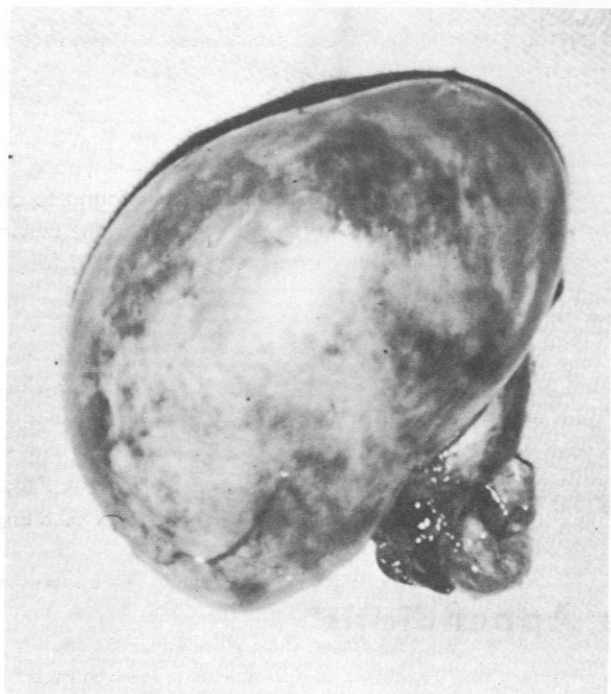


Figure One. Right ovarian cyst removed from Case No. One.

Case No. Two

C.P. was a 7-year-old girl who was admitted to the Naval Hospital Boston in March 1970 with abdominal pain of three days' duration. The pain was crampy in nature and associated with anorexia, nausea, and vomiting. The child had no history of dysuria and there had been no recent upper respiratory infections. Significant in her past medical history was the complaint of several episodes of lower abdominal pain which had resolved spontaneously in one or two days. Urinary tract infections had been suspected on those occasions but repeated urinalyses and a recent IVP study were reported normal. There had been no previous surgery.

Physical examination revealed an alert, prepubertal female in obvious pain, lying with her hips flexed. Temperature was 100°. Her abdomen was flat, and voluntary guarding was present. There was generalized tenderness, greatest in the right lower quadrant, and rebound tenderness was demonstrated.

Hematocrit on admission was 40 volumes percent. White blood cell count was 22,000/cu. mm. with a shift to the left. Chest X-ray and urinalysis studies were within normal limits. Abdominal X-ray examination disclosed the loss of the psoas muscle shadow on the right.

At surgery the appendix appeared grossly normal. Further exploration revealed an ovoid gangrenous mass in the right pelvis which measured 3 x 4 cm. This

represented a twisted and infarcted right ovary and tube. A right salpingo-oophorectomy and incidental appendectomy were performed. The child did well postoperatively and was discharged five days later. The pathology report noted a hemorrhagic, necrotic right ovary and salpinx without evidence of tumors or cysts.

Case No. Three

S.E. was a 15-year-old girl who was admitted to Naval Hospital Boston in June 1970 with abdominal pain of 12 hours' duration. She was awakened from sleep early on the day of admission with sharp abdominal pains in both lower quadrants. This was associated with nausea and vomiting. Diarrhea and urinary tract symptoms were denied. Within the previous year she had experienced two episodes of lower abdominal pain which was milder in intensity and did not require hospitalization. She had noted regular menstrual periods. Her past medical history was unremarkable and there had been no previous surgery.

Physical examination revealed diffuse abdominal tenderness and guarding, especially in the right lower quadrant. Temperature was 102°. Rectal and pelvic examinations disclosed tenderness on the right side but no masses were felt. Hematocrit was 42 volumes percent. White blood cell count was 10,500/cu. mm. with a shift to the left. Other laboratory studies, including urinalysis and X-ray examinations of the chest and abdomen, were within normal limits. Preoperatively a diagnosis of acute appendicitis was made but at surgery a normal appendix was observed. An abscess of the right ovary which had extended to the broad ligament was discovered. A right oophorectomy and an incidental appendectomy were performed. The patient made an uneventful recovery. Cultures taken from the abscess grew out *Aerobacter* (*Enterobacter*).

Discussion

In a recent review of the pediatric literature (girls under 13 years of age) James¹ found 125 cases of ovarian tumors or cysts producing torsion of the uterine adnexa, and 41 cases of torsion of a normal ovary and salpinx. Simple cysts and dermoid tumors are most commonly found in cases in which torsion is precipitated by a diseased ovary. The extreme length and mobility of the pedicle and the narrow-based ovarian ligament are felt to predispose to torsion in the cases associated with otherwise normal adnexa. The sigmoid colon is considered to impede torsion on the left side. Most cases occur on the right side and are incorrectly diagnosed preoperatively as acute appendicitis. About

50 percent of these patients have a history of recurrent abdominal pain (as in Cases No. 1 and No. 2), and present a tender mass on rectal examination.² Dermoid cysts can often be detected on the abdominal X-ray examinations by their calcification.

Ovarian abscess, as distinct from tubo-ovarian abscess, is another uncommon disease. The offending microorganism is not *N. gonorrhea*, but one of a variety of other organisms — mainly *E. coli*, *Bacteroides*, and *Streptococcus*. The portal of entry may be hematogenous, or by direct contiguity from appendicitis, diverticulitis, etc. The presence of a corpus luteum, which provides a good culture medium, is thought to be highly conducive to the development of an isolated ovarian abscess.³

Abdominal pain in young girls is a frequent and challenging problem confronting the pediatrician, surgeon, and gynecologist. In a review of 5,800 operations (on male and female patients of all ages) for appendicitis over a 23-year period at the Massachusetts General Hospital, an error in the preoperative diagnosis was made in 18 percent of cases. Next to mesenteric

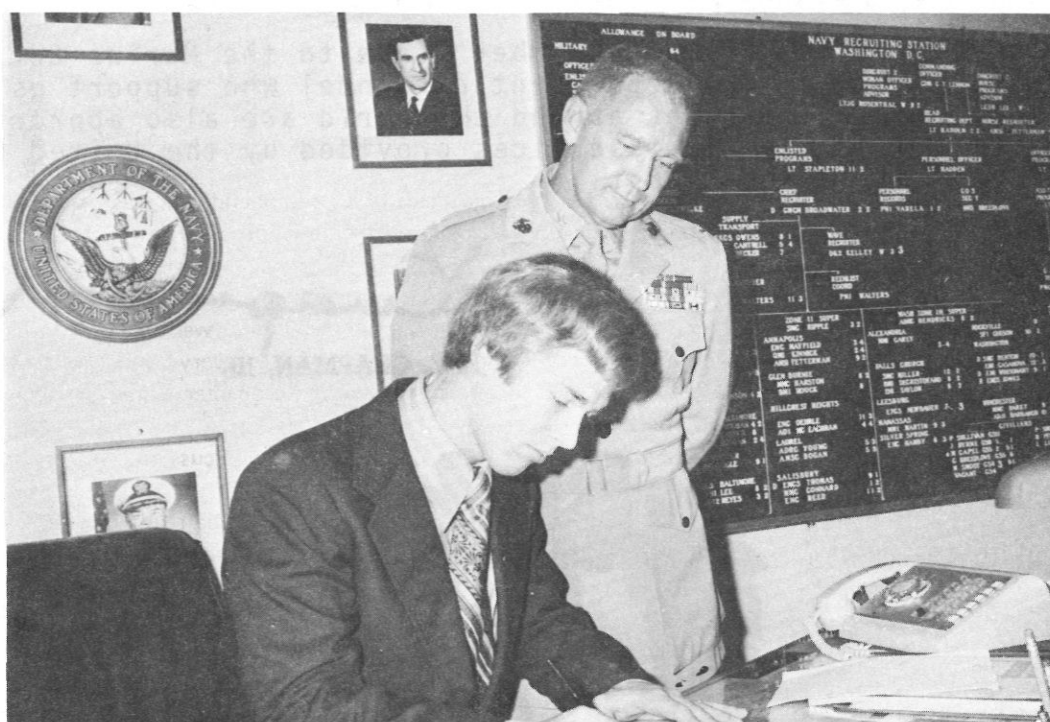
adenitis, adnexal pathology accounted for the greatest number of errors in diagnosis.⁴

Conclusion

A presumptive diagnosis of appendicitis in young girls is always suspect. If the appendix is found to be normal or questionably inflamed at surgery, the pelvic cavity must be carefully inspected and explored for gynecologic disorders.

REFERENCES

1. James, D.F.; Barber, H.R.K.; and Graber, E.A.: Torsion of Normal Uterine Adnexa in Children. *Obstet Gynecol* 35: 226, 1970.
2. Shultz, L.R.; Newton, W.A.; Clatworthy, H.W., Jr.: Torsion of Previously Normal Tube and Ovary in Children. *N Engl J Med* 268:343, 1963.
3. Wilson, J.R.; and Block, J.R., III: Ovarian Abscess. *Am J Obstet Gynecol* 90:34, 1964.
4. Barnes, B.A.; Behringer, G.E.; Wheelock, F.C.; and Wilkins, E.W.: Treatment of Appendicitis at Massachusetts General Hospital (1937-1959). *JAMA* 180:122, 1962.



COL Robert E. Young, USMC watches as his son, Robert Jr., signs the orders appointing him an Ensign in the Naval Reserve. ENS Young, who was selected earlier this year to participate in the Navy's Medical Student Scholarship Program, is attending the Medical College of Virginia. In addition to full tuition while in medical school, he will receive the pay and allowances of his rank, including scheduled promotions, during the course of his studies. COL Young, who is on duty at Marine Corps Headquarters, administered the oath to his son during commissioning ceremonies at the Navy Recruiting Station in Washington D.C. on 11 August.—PAO, BUMED.



DEPARTMENT OF THE NAVY
HEADQUARTERS UNITED STATES MARINE CORPS
WASHINGTON, D. C. 20380

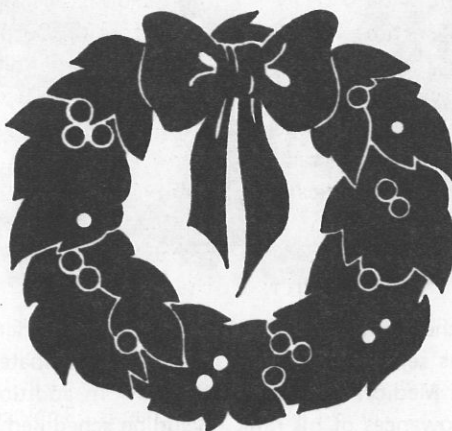
From: Commandant of the Marine Corps
To: Surgeon General of the Navy

Subj: Dedication Issue of U. S. Navy Medicine

1. The November 1971 issue of U. S. Navy Medicine has reconfirmed the close relationship that exists between the Marine Corps and the men and women of the Navy Medical and Hospital Corps.
2. The authors and editorial staff are to be commended for conveying the full spectrum of medical support provided to the Marine Corps.
3. Dedication of the November issue to the Marine Corps and to the medical department personnel who support us is appreciated. Marines around the world are also appreciative of the excellent services provided by the United States Navy medical department.

A handwritten signature in black ink, reading "L. F. Chapman, Jr.", is positioned above the printed name.

L. F. CHAPMAN, JR.



Navy Manpower (Medical) In Support Of The U. S. Marine Corps

By LCDR Robert D. Smith, MSC, USN, Navy Allowance Office,
Headquarters, U.S. Marine Corps, Washington, D.C.

The relationship between allowance and the Marine Corps Table of Organization is often misunderstood. The two are comparable, just as with Navy ships and stations. Allowance is the peacetime manning based on peacetime operations, upkeep requirements, habitability and budgetary considerations. Marine Corps Table of Organization, or complement, represents manpower authorized to meet full mobilization manning and the requirements of a wartime environment. Because of the additional need for personnel during the Vietnam conflict, augmentation billets were authorized to bring Marine units up to Table of Organization strength.

Allocation of these billets was not limited to the operating forces in Vietnam. Augmentation billets were also authorized at shore support establishments where required on the basis of mission and function.

Traditionally, units of the Fleet Marine Force (FMF) are not staffed at full allowance. Such was the case in 1964, at least, for all of the Fleet Marine Force, Pacific. When hostilities began in Southeast Asia, units of the Fleet Marine Force, Pacific had to be staffed to peacetime level, and then to wartime level. A rapid withdrawal of personnel from CONUS units — notably hospitals — resulted. Many Navy ratings are authorized for Marine units but there is a predominance of hospital corpsmen and dental technicians. This same manning situation also prevails in the case of medical officer specialists. During peacetime, even though authorized, surgeons, anesthesiologists, and other medical specialists are seldom assigned for duty with Marine

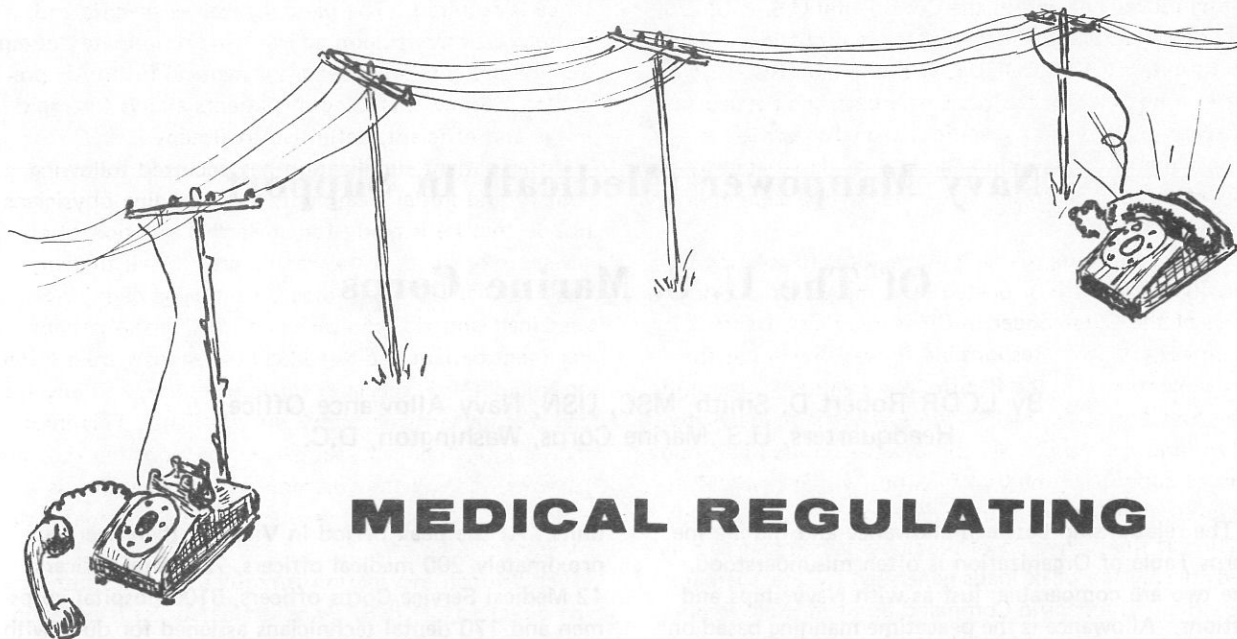
units. At the peak period in Vietnam there were approximately 200 medical officers, 78 dental officers, 42 Medical Service Corps officers, 3100 hospital corpsmen and 170 dental technicians assigned for duty with Marine units in the Pacific area.

The large number of hospital corpsmen required for one-year unaccompanied tours with the FMF units made it necessary to deviate completely from SEAVEY/SHORVEY. Hospital corpsmen were accordingly withdrawn from the rotation system and special instructions were issued for reassignment upon completion of Vietnam tours. These instructions allowed for a short period of shore duty, to be followed by a return to sea duty. Men assigned in ships were also reassigned to FMF duty.

Prior to serving an initial tour of duty with FMF units, attendance at one of the two Field Medical Service Schools is required. Such a pipeline gap resulted from the necessary time frame for Field Medical Service School attendance together with leave, travel and proceed times, that hospital corpsmen were ordered to the Field Medical Service School upon completion of Basic Hospital Corps School, and then to medical units ashore for patient-care experience. This provided a readily available backup of hospital corpsmen trained in field medicine prepared for duty with the Fleet Marine Force. At one time there were in excess of 800 hospital corpsmen attending the two Field Medical Service Schools. Staffs at the schools had to be increased and because of advances in medical technology, changes in the curriculum were required.

Now that a reversion to peacetime environment has developed, all augmentation billets have been deleted. Units have returned to their usual locations with parent commands. They continue to train and prepare for the time when mount out and mobilization may again be required. ☘

The above paper and several of the succeeding articles were received for publication in the November issue of U.S. NAVY MEDICINE which was dedicated to the Marine Corps and its medical support. We regret the space limitations that made it necessary to delay publication of these informative reports.



MEDICAL REGULATING

*By LCDR P. R. Patterson, MSC, USN;
Navy Hospital, Camp Pendleton, California.*

Medical regulating is a traffic management tool for effective control of patient movement from an area of combat operations or civil disaster. The concept is applicable to civilian as well as military situations and some cities have instituted programs which include medical regulating as an important element of disaster control.

Medical regulating consists of two types of control. Primary regulating is the control of patient movement from the site of injury to the medical facility best suited to treat the patient's immediate needs. Secondary regulating is concerned with any subsequent movement between medical facilities.

Excellent results have been achieved by the enlightened use of medical regulating in Vietnam. Several articles have been written which explain the system in detail. Two such articles appeared in previous issues of this magazine in May and June of 1970.^{2,3} The Bureau of Medicine and Surgery, and Headquarters Marine Corps have actively engaged in a comprehensive study of medical regulating and its application to Marine Corps amphibious operations. For some time the Army has employed the concept of medical regulating as an integral component of Field Medicine doctrine. The experience gained by Navy Medical Service Corps officers working with the Army and Air Force in medical regulating has been invaluable.

Primary Regulating

Primary regulating is basically a single service requirement. However, where joint or combined operations and support occur, primary regulating should be carried out by jointly staffed centers. An example of a joint primary regulating center was the I Corps Joint Medical Regulating Office in DaNang, RVN in 1969-70. This was an Army-Navy staffed communications center which coordinated the evacuation control process from battlefield to medical facilities located at DaNang. In addition to primary regulating, this center also coordinated secondary regulating to out-of-country facilities, and provided a central point of contact for all medical evacuation needs.

Secondary Regulating

There are currently three major medical regulating agencies responsible for secondary regulating functions. Until recently, each of these offices was jointly staffed. Each has a specific area of responsibility, and coordinates patient movements within these areas.

The Armed Services Medical Regulating Office (ASMRO) in Washington, D.C. is responsible for regulating movement into specific U.S. hospitals. The office is staffed with officers of the Army, Navy and Air Force to provide for inter-service coordination and

individual service requirements. In addition to authorizing movement within the Continental U.S. (CONUS), the office authorizes movements from outside CONUS to hospitals within CONUS. Usually ASMRO designates a hospital on the basis of a patient's particular medical problem and specific personal information. The preferred area within the U.S. as designated by the patient, and, if possible, a hospital of the same military service are selected.

The Pacific Command Joint Medical Regulating Office (PACOMJMRO) located at Camp Zama, Japan is a unit of the Commander in Chief Pacific (CINCPAC) Surgeon's office. Responsible for regulating patient movements within the Pacific Command area, the unit was, until recently, staffed with officers of the Army, Navy and Air Force. As the evacuation load and number of supporting medical facilities within PACOM decreased, it was no longer economical to maintain this office at the high state of readiness it had had to maintain during the peak loads generated by the Vietnam conflict. The Pacific Command Joint Medical Regulating Office — Southeast Asia (PACOMJMRO-SEA), located in the MACV (Military Assistance Command, Vietnam) Command Surgeon's office, is under operational control of PACOMJMRO. This office is still staffed with officers of the three military services.

Hypothetical Case

An example of medical regulation in operation often helps to clarify the interrelationship of various elements within the system. A Marine squad operating south of DaNang takes a booby trap casualty, for example. The squad leader calls for a medevac, and a helicopter is dispatched to evacuate the wounded Marine. As the helicopter approaches the LZ (Landing Zone) the pilot comes up on the Medevac Common frequency. At this time the medical regulating watch listens to the conversation between the ground party and the pilot. As soon as the helicopter lifts off the LZ with the casualty aboard, the pilot calls the medical regulator and relays information regarding the patient's injuries — multiple wounds of the lower extremities, head and eye injuries. The pilot indicates that he is inbound 20 minutes out. The medical regulator consults his status board and determines that there are two medical facilities capable of handling head, eye, and orthopedic problems, but one of these has a 4-hour operating room backlog. The regulator then directs the pilot to take his patient to the other facility which can handle the patient immediately. The regulator advises the receiving facility that the helicopter is inbound to that position bearing a patient with the injuries as described. The receiving facility is then able to prepare adequate triage, and

alerts the appropriate specialty services that their assistance is required. The patient receives specific and prompt treatment upon arrival. Indiscriminate "dumping" of patients on the nearest medical facility is precluded. An even loading of patients allows for rapid triage and efficient, definitive treatment.

After patient stabilization has occurred following surgery and initial treatment, the attending physicians decide that he is ready for onward evacuation to an off-shore hospital in the Pacific area, or all the way back to CONUS, depending on the type of injuries sustained and the clinical condition of the patient. Pertinent patient data is coded by diagnosis, class (litter or ambulatory), specialty medical service, and any special requirements necessary during flight. This information, together with similar data concerning all other patients from all the adjacent medical facilities, is called into the medical regulator who consolidates the movement requests.

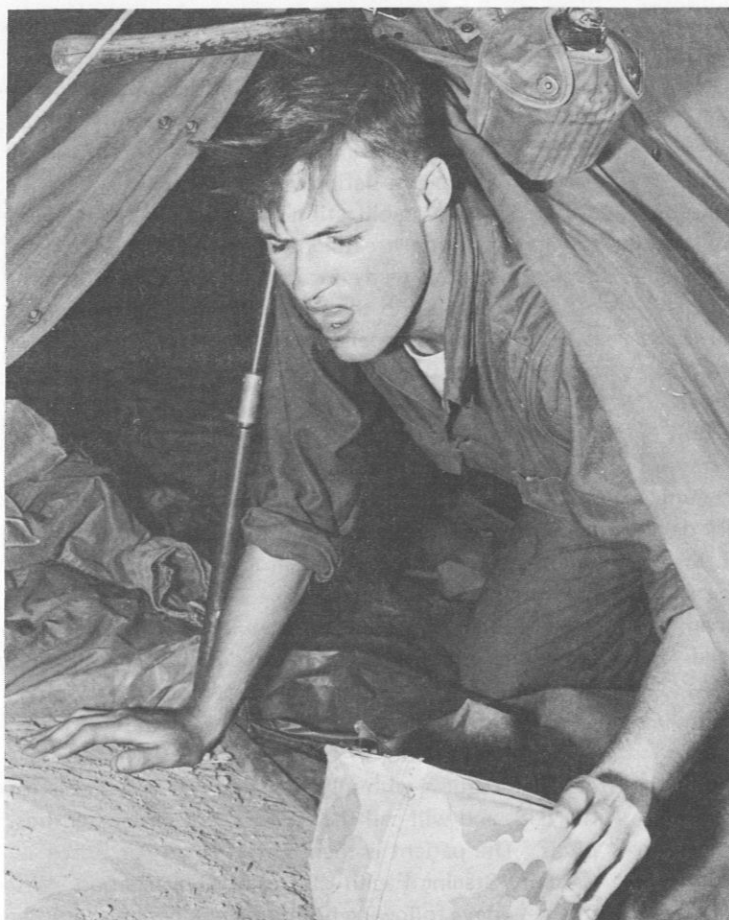
Additional information is required for patients moving direct to CONUS. A consolidated list is called into the PACOMJMRO-SEA which designates the hospital to which the patient will be moved. If the movement is direct to CONUS, PACOMJMRO-SEA will consolidate the request with all other movement requests for CONUS, and will call the ASMRO for designated hospitals. The patient is then moved to an Air Force Casualty Staging Facility for onward evacuation. Within a few days following his injury, the patient could be moved from the site of injury to a CONUS hospital located within a few miles of his home.

Conclusion

A complete explanation of medical regulating, or the overall evacuation system of which it is only a part, is well beyond the scope of a brief paper. But as more personnel are trained, and the concept becomes doctrine, more interest and literature will be generated. It is a vital aspect of the overall medical support of the Marine Corps, and our experience has shown it to be a superb management tool for increasing the efficient utilization of that support.

REFERENCES

1. Aeromedical Evacuation, Proceedings of CINCPAC Fourth Conference on War Surgery in February 1970. U.S. Navy Medical Newsletter, 55:5, May 1970, p. 33.
2. Casualty Evacuation Control. U.S. Navy Medical Newsletter, 55:5, May 1970, p. 32.
3. Pioneer Medical Regulating Center Ceases Operations. U.S. Navy Medical Newsletter, 55:6, June 1970, p. 29-31. ☛



WINDMILL

CANYON

By LCDR P. R. Shackelford, MSC, USN; Training Medical Officer, Field Medical Service School, Marine Corps Base Camp Pendleton, California.

All hospital corpsmen and dental technicians who train at Field Medical Service School, Camp Pendleton spend eight days and six nights in Windmill Canyon. The Canyon lies within the field training area assigned to the Field Medical Service School (FMSS). It is here that hospital corpsmen are afforded the first opportunity to practice their art in a setting designed to resemble the field environment of the Fleet Marine Forces. It is here that the total culmination of training and concentrated study finds practical application, with a unique blending of all that has been learned in the past with the expertise recently acquired at the Field Medical Service School.

Field Medical Service School dates back to 1 July 1955, when it replaced the Field Medical Training Battalion. The school has continued to train Navy medical personnel for duty with the Fleet Marine Forces since that time. FMSS is a unique command since it represents an organization of Marine Corps Base, Camp

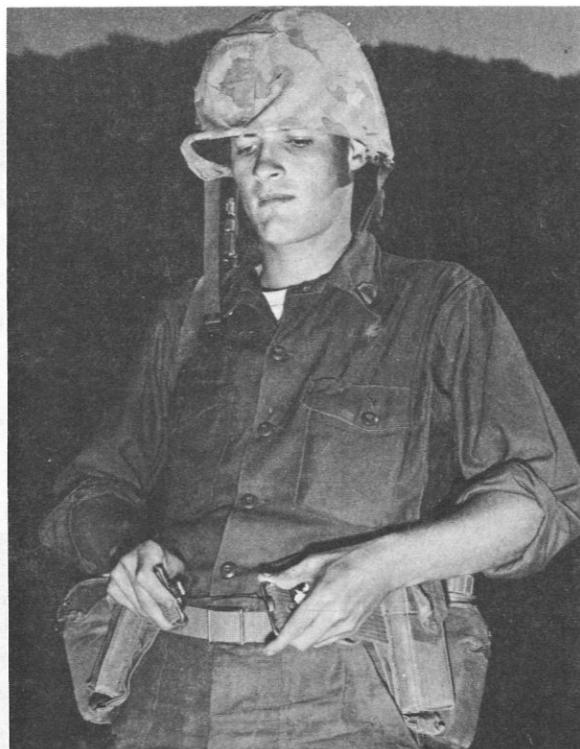
Pendleton, Calif., and it is also a Naval activity of the shore establishment as defined in Article 0782 of U.S. Navy Regulations. Located in the Del Mar area of Camp Pendleton, FMSS holds organizational colors of both a Naval activity, and a Marine Corps organization.

An officer of the Medical Service Corps is assigned as Commanding Officer of FMSS by the Chief of Naval Personnel upon the recommendation of the Surgeon General. CAPT Anderson T. Mason, MSC, USN presently commands the Field Medical Service School which falls under the command of the Commandant of the Marine Corps, and he reports to the Commanding General, Marine Corps Base for duty. FMSS is a formal Marine Corps school that qualifies enlisted personnel for a Navy Enlisted Classification Code (HM-8404 or DT-8707) which is assigned by BUMED. The school staff includes officers and enlisted personnel of both the U.S. Navy and the U.S. Marine Corps. FMSS also trains Naval officers, particularly physicians,

dentists and medical administrators. A somewhat modified version of the enlisted course is also offered for chaplains and occasional nurse officers preparing for assignment to Fleet Marine Force billets.

The usual mix of students includes hospital corpsmen and dental technicians in a ratio of ten or twelve to one. Only one curriculum is offered for enlisted students and the emphasis is placed upon the company aid man of a Marine rifle company. Such training is vital for dental technicians who may well be called upon to relieve their fallen colleagues in combat or close combat support. Senior petty officers receive much the same training as the lower-rated enlisted men although a few separate classes in Marine Corps supply, logistics and administration are conducted for senior petty officers.

A uniform change heralds the beginning of training. The traditional Navy blues and dungarees are replaced by Marine Corps greens and utilities. More recently, a bit of hair has been shed in the bargain. Following a quick change into utilities and combat boots, the student draws his issue of individual equipment more commonly known as 782 gear, which includes: field jacket, field mess kit, poncho, tent half, helmet, web-belt, and canteens. During the next four weeks the



Student dons combat gear to embark on field problem.



Students prepare to march from their base camp during bivouac. They will learn to work in simulated combat situations during the tactical maneuvers which will follow.



M-14 rifle class with Marine drill instructor, SGT Charles E. Williamson, USMC (right).

hospital corpsmen and dental technicians become acutely and completely aware of the role that 782 gear plays in the life of a sailor on duty with the Fleet Marine Forces.

At FMSS Camp Pendleton, physical fitness is stressed from the outset. Daily three-mile runs ensure the capability of performing three-mile runs with ease at the end of four weeks. Five conditioning hikes (forced marches if you will) are interspersed throughout the training schedule. Trainees also perform a wide variety of calisthenics each day. The strenuous effort required is designed to prepare the corpsman for his daily work in the future as a company aid man. The company aid man must carry his full load of gear while moving with, and staying abreast of, his company. When the company stops to rest, the corpsman goes to work. Removing his pack, the corpsman opens up his unit one and commences treatment of blisters and other minor ailments which have developed while the company has been on the move. Physical stamina of the company

aid man should equal or exceed that of his Marine colleagues. While subject to the FMSS physical conditioning program and diet control, hospital corpsmen have been known to lose in excess of 65 pounds of body weight during the four-week period. There can be no doubt that corpsmen are obliged to attain a sound degree of physical fitness in order to function properly, and the road to that acceptable physical condition can never be traveled comfortably.

The major emphasis at FMSS Camp Pendleton is placed on survival in combat. The importance of the company aid man is presented on the basis of morale and the vital medical support which he provides. The corpsman who becomes a casualty, needlessly, is deplored. Alert corpsmen are infinitely more effective. Students are continually admonished to keep the head down and the brain in gear at all times.

Tactical subjects taught at FMSS include map and compass, booby trap indoctrination, squad tactics and

movements, ambush techniques, drills and inspections, cover and concealment, camouflage, demolitions and field communications. There is extensive teaching during nighttime hours, in addition to instruction during regular working hours. Classes vary in form ranging from formal didacticism to practical application on ranges and in various other settings. Students also learn how to handle small arms. This instruction is considered necessary because: the corpsman may have to defend himself and his patients from ambush, he must be capable of disarming the casualty's weapon, and an overall familiarization with weapons is required. Classes in weapons handling, safety, disassembly, and assembly are provided for M-14 and M-16 rifles, as well as the .45 caliber automatic pistol. At FMSS the M-16 rifle and the .45 caliber pistol are fired in order to acquaint the student with the "feel" of these weapons. Students also observe a Marine rifle squad in action at night with tracer ammunition, during a defensive exercise employing both rifles and machine guns.

Medical training at FMSS is particularly oriented toward field medical support, emergency medical care and preventive medicine. Hospital corpsmen and dental technicians learn to adapt their previous training and

skills to the field situation. Among the subjects considered here are: medical support to large scale operations, casualty evacuation, tentage, combat medical records and individual first-aid procedures. Ingenuity is developed. Corpsmen learn to improvise in order to provide effective methods of bandaging, splinting, and litter transport. A realistic view of all that will be expected of them during their assignment to the Fleet Marine Forces is presented. Points of view often change after four short weeks of training. FMSS is not a public relations operation or a comfortable, pleasant interlude, nor should it be. It is a grim, concentrated, demanding, difficult preparation of young men who emerge to assume vital positions in hazardous situations, where a moment of hesitation or thoughtlessness tips the balance between life and death.

Windmill Canyon may be a long way from Khe Sanh and Hue City, but there is a visible connection. FMSS graduates have compiled an impressive record of valor in combat in Vietnam. At least three Medals of Honor and numerous Navy Crosses, Silver Stars and Bronze Stars have been bestowed upon them. The spirit of countless young men who have made the supreme sacrifice in the service of their country and fellow-men can be felt at Windmill Canyon, if you look back. ☸



Medical Problems of Recruit Training

A Research Approach

By LT Thomas F. O'Donnell, Jr., MC, USNR;
16 Carver Road, Wellesley, Mass.

Introduction

The purpose of this briefing is to familiarize you with some of the disabilities incurred by Marine recruits undergoing training at the Marine Corps Recruit Depot, Parris Island, S.C. The disease entities which have been frequently encountered will be analyzed and their relation to the training program will be considered. Over the last two years, efforts have been made to investigate the causes of these conditions. Clinical aspects have been explored in order to provide a firm basis for improved treatment. We have continuously asked ourselves whether a given disease entity was endogenous to the recruit (i.e., due to poor physical condition) or related to the training program.

There is an admitted hazard in recommending changes that could defeat the purpose of the training program. The recommendations presented here are made with a view toward preserving the maximum benefit of training and incurring the minimum amount of disability. It is not my intent to suggest that changes be made in any training program on the basis

of personal impressions or the results of a single sensational event. The recommendations offered here have evolved from carefully conducted scientific studies. Attention is focused on areas where preventive measures have decreased the incidence of disease, validating the merit of that approach, and on other areas where suitable changes should be made to duplicate these beneficial effects elsewhere.

As you well know, Marine recruit training places demands on the individual to perform at 100% of his capacity. It is unique and not paralleled by the other services since the product of training is exceptional. Minor temporary disabilities can be tolerated, since they will in time pass, however, this is not true of the following conditions.

Infections of Respiratory Tract, Skin and Hand

Acute respiratory disease (pneumonia, common cold) has been well investigated by various centers, especially the Naval research group at Great Lakes. This condition is at a stable level in our medical population.

The incidence of skin and hand infections was rampantly high in the summers of 1967 through 1969. A Preventive Medicine Unit No. Two survey of staphylococcal skin abscesses recommended changes in bathing facilities and control of fomites. This resulted in a notable decrease in skin infections. In our analysis of hand infections, 100 consecutive cases of minor infections of the hand were reviewed to uncover the precipitating causes. The following observations were made.

The above article is taken from a presentation by LT T.F. O'Donnell, MC, USNR on 21 April 1971 at the Bureau of Medicine and Surgery, Washington, D.C. Dr. O'Donnell has been released to inactive duty and is presently a senior Surgical Resident, Harvard Surgical Service of Boston City Hospital, and a Surgical Research Fellow at Harvard Medical School, Boston, Mass.

(1) Fifty percent of the hand infections had a history of antecedent hand trauma.

(2) Two specific phases of training rated high in the incidence of manual trauma. Rifle range and mess duty accounted for 70% of the hand infections.

(3) Due to the delay in seeking medical treatment, most cases were clinically advanced and required prolonged hospitalization.

(4) On culture, 94% of the hand infections yielded coagulase-positive staphylococcus aureus as the etiologic agent.

(5) Frequent hand washings combined with daily examination of recruits' hands should reduce the frequency of hand infections. The striking drop in the incidence of hand infections after initiation of hand washings and daily examinations is demonstrated by the following statistics. In 1969 the incidence of hand infections was 82 out of approximately 44,574 recruits. In 1970, the incidence dropped down to nine out of 32,041 recruits. This exemplifies the effect of drill instructors initiating a stringent hygienic program and early detection of hand infections.

Strict hygiene standards and early detection of infection have resulted in a tremendous savings of man hours and expenditures for hospitalization. The 2563 days formerly lost from training per 100 recruits is now spent on the field, not on the hospital ward. The result is a better yield from training without compromising the quality of the finished product.

Heat Related Diseases

The hot, humid months of April through October at Parris Island account for a sizeable amount of recruit disability due to heat related diseases. One need not emphasize the deleterious effects of heat disease on the fighting man. U.S. military history attests to this fact from the battle of Freehold or Monmouth where the large part of the British dead (249) resulted not from wounds but rather from heat disease, down to the present conflict in Vietnam.

Clinical Features

These diseases are customarily considered in three categories: heat stroke, the most serious form of the disease; heat exhaustion; and heat cramps. The hallmark of heat stroke is the triad of clinical manifestations: hyperpyrexia; severe central nervous system disturbance, combative or comatose; and hot, dry skin. The important pathophysiologic features include: (1) failure of the hypothalamic heat regulating mechanism leading to excessive body heat and cessation of sweating; (2) increased metabolism resulting in further heat build-up leading to shock; (3) heat load destruction of

thermolabile enzymes; and (4) massive vasodilatation in skin and muscles with compensatory decrease in peripheral resistance and increased cardiac index. Previous civilian studies have indicated mortality rates of 17 to 38 percent for heat stroke. Cases are usually isolated in the civilian population, and are more numerous in the military environs. The uniform population and environment at Parris Island provide a ready means of studying the clinical characteristics of this entity.

Prevention and Treatment Programs

Impressed with the frequency (150-300 cases per year) and severity of heat related disease, we instituted a reemphasis on the prevention program and launched an investigation program at Parris Island, S.C. The first phase of the program was aimed at prophylaxis. These measures were based on known characteristics of the heat related diseases and previous recommendations from the Navy Environmental Laboratory. Dr. Robert Proulx and Dr. C. C. Sullivan organized the heat prevention program at Parris Island, and carried out the instruction program. Assigned to each training field was a corpsman who had attended special classes on the diagnosis and treatment of heat diseases. He was equipped with blood pressure cuff, rectal thermometer, ice water sheets and stretcher. A phone was installed in direct communication with the Main Dispensary. The corpsmen stationed themselves so that they could view the entire exercise field. They actively sought out potential heat casualties. When a recruit exhibited signs of heat disease the corpsman quickly evaluated the vital signs, mental status and sweat condition. Initial triage was accomplished. If the recruit presented only heat cramps, he was allowed to rest in the shade and received a saline-dextrose preparation by mouth. However, if the recruit had evidence of heat exhaustion or heat stroke, he was immediately taken via ambulance to the dispensary. En route, cooling with ice sheets was continued. At the dispensary the heat casualty was then reevaluated by an organized team of heat specialists consisting of the Medical Officer Of the Day, Heat Team Nurse and Heat Team Corpsmen. A standardized program of heat treatment and protocol were instituted on the basis of the patient's diagnosis and condition. Further comment on the reason for this treatment will be made later.

Results

Table I reveals that 1968 was a particularly bad year for heat related diseases, with a high incidence of heat exhaustion and cramps. Heat stroke, I feel, appears

TABLE I. DISPENSARY ADMISSIONS FOR HEAT RELATED DISEASES AT PARRIS ISLAND, S.C.

YEAR	STROKES		EXHAUSTION		CRAMPS	
	Total	No./100 Recruits	Total	No./100 Recruits	Total	No./100 Recruits
1968	15	0.5	254	9.0	43	1.5
1969	8	0.2	106	2.5	13	0.3
1970	27	0.8	92	2.9	13	0.4

deceivingly infrequent due to the application of less rigid criteria. In 1969 a decrease in total cases of heat related disease was observed. Again the total number of heat stroke cases is low. The 1970 figures reflect a new awareness on the part of the medical officer. The recognized criteria for heat stroke were applied. A threefold increase in the number of heat stroke cases admitted is attributed to increased awareness and the particularly warm summer.

Table II really demonstrates the efficacy of the program, if we contrast 1970 figures to those of the preceding years. In 1968 only 40% of recruit heat casualties were returned to full duty and 10% were delayed in medical platoon. Two recruits were medically discharged because of kidney and brain damage. A similar picture is represented by figures for 1969, with 25% of the heat casualties returned to full duty, and three recruits medically discharged. In 1970, however, 25 recruits were admitted with heat related diseases, 74% were returned to full duty, none were referred to medical platoon and none were medically discharged. The significance of a preventive program is evident. There is a notable decrease in the severity of heat stroke, manifested by a more direct return to training and the absence of complications.

A prospective study was also instituted to delineate the hemodynamic responses to heat stroke. Several reports have underscored the problems of acute circulatory failure among heat stroke victims, but none have

presented or compiled a series of clinical hemodynamic data obtained in heat stroke patients. During the summer of 1969, I was impressed with the large percentage of patients who presented hypotension secondary to heat stroke. This prospective study was devised to delineate the cause of hypotension in heat stroke. Eight Marine recruits underwent serial hemodynamic studies which included measurement of central venous pressure, arterial pressure, pulse, rectal temperatures, hourly urine outputs and cardiac output. These clinical measurements were obtained in all such patients who presented with the cardinal signs of heat stroke: hyperpyrexia, central nervous system derangement, and anhidrosis. Four patients were hypotensive on admission to the Dispensary Aid Station. All the study patients survived and none developed renal failure.

Analysis of the Environmental Data

The mean rectal temperature of 107° reflected the severity of the heat stress presented by all study patients represented in Table III. Patients no. one through seven comprised the hyperdynamic group on the basis of their cardiac responses. The mean rectal temperature for this group on admission to West End Dispensary was 106.8°F, in contrast to the hypodynamic patient's markedly elevated temperature of 110°.

Several important features of this data merit discussion. (1) *The high humidity*, always greater than 49%,

TABLE II. MEDICAL DISPOSITION OF MARINE RECRUIT HEAT CASUALTIES AT PARRIS ISLAND, S.C.

YEAR	TOTAL ADMITTED	FULL DUTY		LIGHT DUTY LESS THAN SEVEN DAYS		MEDICAL PLATOON*		BOARDED OUT OF MILITARY		AVERAGE HOSPITAL STAY (DAYS)
		Total	%	Total	%	Total	%	Total	%	
1968	10	4	40	3	30	1	10	2	20	7
1969	12	3	25	2	16 2/3	4	33 1/3	3	25	24
1970	25	16	74	9	26	0	0	0	0	10

*Special platoon at Parris Island for recruits with medical problems requiring prolonged rest but minimal professional care.

TABLE III. TEMPERATURE AND HUMIDITY MEASUREMENTS FOR
MARINE RECRUIT HEAT CASUALTIES AT PARRIS ISLAND.

PATIENT'S NUMBER	WBGT*	DRY BULB TEMP.	WET BULB TEMP.	HUMIDITY	RECTAL TEMP. AT:	
					West End Disp.	Main Disp.
(1)	86.8	92	76	50%	106	Adm. 99 1 hr. 98.6 12 hrs. 98.6
(2)	84	88	77	61%	106	Adm. 97 1 hr. 100.4 12 hrs. 98.6
(3)	85.4	88	76	61%	105.8	Adm. 98.2 1 hr. 98.4 12 hrs. 98.6
(4)	84	88	76	61%	108	Adm. 97 1 hr. 100.2 12 hrs. 100.2
(5)	88	96	78	49%	108	Adm. 101 1 hr. 99.6 12 hrs. 98.6
(6)	85.4	86	76	61%	107	Adm. 101 1 hr. 98.6 12 hrs. 98.6
(7)	88	97	78	50%	107	Adm. 102 1 hr. 103 12 hrs. 98.6
(8)	85	85	76	67%	110	Adm. 99 1 hr. 97 12 hrs. 99
MEAN	86	90	76	57.5%	107	—

*Wet Bulb Globe Temperature

indicates that this environmental factor counteracts the cooling role of evaporative water loss from sweating.

(2) *The wide range of dry bulb* temperatures reinforces the results of previous studies by Minard and Dasler et al., who demonstrated that index and wet bulb temperatures are more reliable criteria for predicting the development of heat stroke from environmental conditions. (3) The hemodynamic data for the eight study patients can be succinctly summarized as follows: (a) Seven patients were markedly hyperdynamic with cardiac indices on admission of 6.45 L/Min/mm^2 (mean), characterizing that response needed to satisfy the demands of increased metabolism and massive vasodilatation, mean $603.28 \text{ dynes sec cm}^5$. (b) Stroke indices

and left ventricular stroke work were elevated consistent with the increased myocardial contractility of the hyperdynamic state. (c) Central venous pressures in the high normal range correspond to the increased venous return of the hyperdynamic state. The markedly elevated central venous pressure of 18 cm. of saline reflected myocardial failure in the hypodynamic patient. This central venous pressure decreased with treatment. (d) The hyperdynamic group's response was strikingly similar to the hyperdynamic state found in sepsis. In both situations cardiac output remains elevated to satisfy both the increased metabolic rate and also the inefficient circulatory runoff secondary to peripheral arteriovenous shunting or to inefficient oxygen

exchange. In heat stroke the peripheral skin and muscle dilatation lead to decreased peripheral resistance and increased flow. The present study demonstrates that heat stroke may be classified as a hyperdynamic cardiovascular state. The patient's ability to respond to the challenge of the hyperdynamic state determines his survival. Therefore, preservation of the ability to mount an increased cardiac output is a necessity.

Application

The following treatment program, was instituted:

- (1) Immediate cooling with ice baths;
- (2) Moderate infusion of crystalloids, usually less than 1000 cc's;
- (3) Correction of persistent hypotension and elevated central venous pressure (myocardial failure) with Isuprel drip.

Some basic changes could lower the incidence of heat disease to 10-15% of its present rate. The time of the day when heat related diseases occur is of interest, since 99% of the cases arise during or after the afternoon run, usually the second run of the day. This is understandable because the recruit is exposed to both the endogenous heat load from exercise, and the massive load from the environment. Examination of the daily changes in the WBGT index — a measurement taking into account temperature, humidity and wind velocity — reveals that this factor is consistently at its maximum during the PT period at 1600 hours, and this level is maintained within one or two degrees until 1800 hours. The early a.m. WBGT is ten degrees lower.

I recommend discontinuing the afternoon run and strenuous PT during the months of June through September (those months with maximum increase in WBGT), in order to decrease the incidence of heat related diseases. During these months emphasis should be placed on the early morning or pre-breakfast exercise session as the main exercise for the day. At first thought one might suspect that this would decrease the amount of exercise taken by the recruit, but on the contrary, total exercise time would remain the same or actually increase because fewer flag days with subsequent curtailment of training would occur as a result of the lower a.m. WBGT indexes.

Rhabdomyolysis

Trauma, electrical shock, ingestion of licorice, arterial thrombosis and violent exercise can cause muscle lysis and myoglobinuria in an apparently normal individual. In 1960 at Parris Island, Howenstine described a retrospective study of 19 patients with exertion-induced myoglobinuria following continuous squat/

jump calisthenics. One patient developed renal failure. Since that initial series of cases, isolated reports of exertional rhabdomyolysis have appeared in the literature usually associated with the training of recruits — Navy at Pensacola, Army at Fort Jackson.

Observations

During the summer of 1969, we encountered a group of recruits with tea-colored urine and muscle tenderness, swelling and weakness involving predominantly the shoulder girdles. Urine examinations were negative for red blood cells or red blood cell casts. Screening test for myoglobin was positive. Muscle biopsies revealed widespread lysis of muscle tissue structure. A prospective study of external rhabdomyolysis was undertaken and represents the largest series of such patients reported to date. The pertinent findings of that study may be briefly summarized as follows.

(1) No geographic predisposition was observed, — i.e., incidence does not favor northerners as previous studies had suggested.

(2) Patients engaged in primarily sedentary occupations prior to entry into the service comprised an at-risk group.

(3) A frequency distribution curve plotted on the basis of monthly incidence revealed that rhabdomyolysis was a disease of all seasons and not just of the summer months as had been suggested by previous studies.

(4) Rhabdomyolysis constitutes a *disease of the first week of training* with 50% of the cases occurring within the first three to five days of training.

(5) Muscle cramps with subsequent swelling represent the first symptoms of the disease.

(6) The muscle groups involved are the shoulder girdle group in 99% of the cases.

(7) Push-up exercises caused the most muscle symptoms.

(8) The passage of dark urine is the symptom which usually precipitates recruit admission.

(9) Laboratory data reflected lysis of muscle membrane with elevated creatine phosphokinase (CPK), serum glutamic oxaloacetic transaminase (SGOT), and serum glutamic pyruvic transaminase (SGPT).

(10) In this series, eight cases of renal failure and two deaths, despite sophisticated hemodialysis treatment, were noted.

Application

On the basis of data derived from this study, several recommendations concerning the problem of rhabdomyolysis have been offered. All cases arise within eight to twelve days of the recruit's arrival at Parris



CAPT R.G.W. Williams, Jr., MC, USN, (left), CO NAV HOSP Beaufort, S.C. presented a Surgeon General of the Navy Letter of Recognition to LT T.F. O'Donnell, Jr., MC, USNR (right), upon his release from active duty. The letter praised Dr. O'Donnell for his organization, initiation and conduct of a research program in the Marine recruit situation. Proficient handling of an inordinate clinical load, and the publication of several scientific papers on heat disorders, renal damage in rhabdomyolysis and hand infections, were commended.

Island. This uniform time frame indicates that the amount of exercise given some recruits during the forming-up period is quite relevant to the development of rhabdomyolysis. No specific formal exercise program, per se, is offered but there are some general guidelines that tend to effect the amount of exercise given — five minutes out of each hour limit. These exercises can be repetitious and do focus on the muscle groups of the shoulder girdle — push-ups, mountain climbing, drops, and lifting of sea bag. The steady rate of four to five cases per month, and the relation of rhabdomyolysis to exercising of the upper extremities suggests that the following changes would be most appropriate.

(1) Exercise should be more graded, especially during forming-up and the first week of training. The number of push-ups should be lessened and repetition should be obviously limited.

(2) The clinical occurrence of muscle swelling, tenderness and limitation of motion should be watched for and detected by the drill instructor. The presence of these symptoms indicates the need for forced rest and hydration. These precautions would not detract from the efficacy of the training program, but would result in significant lowering of the rhabdomyolysis rate.

Stress Fractures

No recent studies have been performed at Parris Island concerning stress fractures, a problem of greater magnitude but with less sequelae. As seen in Table IV stress fractures involve a significant number of recruits and result in prolonged loss of time from training. Dr. E.L. Lobpreis of the Research Division, BUMED, has coordinated a study on electrical induction of bone healing, implementing the first clinical trial of this new

TABLE IV. STRESS FRACTURES

INCIDENCE 946 RECRUITS OR 3% OF ALL RECRUITS IN 1970		
LOCATION	TIME OF OCCURRENCE	DISABILITY
Calcaneal	1st — 3rd week	3 — 5 weeks
Metatarsal	1st — 3rd week	3 — 5 weeks
Tibial	2nd — 6th week	5 — 7 weeks
Fibula	anytime	3 — 5 weeks
Femoral	6th — 8th week	6 — 8 weeks

modality. A cooperative study concerned with the etiology of stress fractures will be conducted at Camp Pendleton and San Diego. The purpose of this investigation is to define certain features of the entity which may be endogenous to the recruit, his equipment or his training, and to identify their relation to stress fractures.

Conclusion

I have presented certain medical problems encountered in a recruit training depot and in particular a marine depot, located in a hot humid climate. These problems were considered both from the therapeutic and investigative standpoints. The benefits of applying basic preventive measures in controlling hand infections are readily perceived. With small changes in the training program heat related diseases can be minimized. Rhabdomyolysis is a more complex problem, and it is the subject of a new research project to explore the etiological aspects of this disease and its relation to the training program. We hope to resolve the question as to whether rhabdomyolysis represents a disease of susceptible individuals, or a disease incurred by any individual who is stressed to a sufficient degree by exercise.

By identifying certain characteristics of the recruit

which make him more susceptible to developing rhabdomyolysis, it should be possible to delineate those recruits most likely to develop training-related disease, and to appropriately modify the initial training regimen.

There is a general need to extend the physical training program to ten or twelve weeks in duration, and also, to grade the pace. The results would benefit our attack on all diseases.

More stringent standards of physical fitness with more discriminating physical examinations should be required — first, during the induction physical, and again during the depot screening physical examination. This would eliminate those recruits with the greatest predisposition to training-related diseases and who are not physically suited for Marine training.

In essence, the thrust of research activity during the last two years at Parris Island has been directed toward maintaining the quality of the finished product — the Marine graduate recruit. We would suggest no lowering of physical standards, but rather augmenting the present high standards. A physiologic approach to training is enhanced by recognizing the capabilities of the recruit on induction, and scientifically conditioning the recruit on the basis of this initial profile. The end result should maintain the highest tradition of the Marine Corps. ☘





To the Editor: It is noted that the article "Drug Addiction in the Military" which appeared on page 57 in the August 1971 issue of U.S. NAVY MEDICINE was apparently the work of the "Office of Information of the Armed Forces, DOD, NO8B-2 and 3."

I am highly critical of such articles when appearing in official or semi-official publications and particularly when that publication is of a scientific nature. We, the military, have not been very alert in anticipating the problems associated with widespread drug abuse nor have we been, and in many respects we are still not, very receptive to changes in our methods of handling the problem until our hand has been forced. In spite of various directives from higher command, now including one from the President himself, we still have those in the service in position of authority who are ignorant and unappreciative of the complexity of the many problems lumped together in the term "drug abuse." Perhaps as medical officers we have not been progressive enough in pursuing a program of education for our line peers, but at least now it is high time that we develop and foster an active and progressive program of education in which we separate the wheat from the chaff. In order to do so we must have information which is detailed, pertinent to the issue and which, incidentally, is seldom contained in official communications or statements of policy.

In this light, the subject article is inadequate. There is nothing in it that has not already appeared in the local daily paper, "Time," and the directives from higher authority. The time has come to stop talking about "drug abuse" as a single distinct entity but in its true sense, i.e., a highly complex symptom of life's problems. Even the semantics are difficult to understand and formalize. Thus we speak of stimulants and depressants in the same sentence and usually collectively. We do not differentiate between narcotics and opiates nor between those that are legal and those that are illegal. Seldom is alcohol mentioned although

its action is much the same, and it is certainly a problem.

It is rather obvious that, although the President and the Secretary of Defense used the term "drug addiction," the program is directed toward the use of heroin. If so, then the term heroin addiction should be used. A generic term only tends to make people think in generalities. Of course we cannot forget the generalities of the entire drug problem but at least when we are talking about specifics, let us be specific.

Again, as far as I am aware, no information has been promulgated regarding the details of the laboratory testing program to be carried out by the military. What test is it? For what does it test? What is the incidence of false positives and/or negatives? What does a positive indicate? Is it only for heroin? How long after use of this substance is it positive? Does it show true addiction or merely use (presence)?

It is hoped that we can look forward to an article in Navy Medicine in the very near future which will answer some of these questions. We in the field need this advice. And above all we need to take a second look at our philosophies and our semantics. If we are really talking about a spade, let us call it a spade, not a blunt instrument made of iron and wood by which dirt may be lifted up and turned over. This could as well describe a plow.

CAPT W.S. Hansen, MC, USN
COMCRUDESANT
Force Medical Officer

U.S. NAVY MEDICINE would welcome professional papers from Navy physicians who are involved with drug addiction and drug abuse, for example, in some of the newly instituted rehabilitation and treatment centers. CAPT Hansen's plea for quality publication is heartily endorsed.

The DOD article which appeared in the August

1971 issue was not meant as a substitute for professional papers. It was considered worthy of publication because:

(1) It was available and timely.

(2) It responsibly reported the official policy on Drugs, which is appropriately published in a professional journal. Newspapers and popular magazines do a fine job of "spot reporting" but they are not expected or designed to present in full detail the official stance of our superiors.

(3) Since other informed members of the Navy are familiar with the DOD article, it seemed reasonable to expect that Medical Dept. personnel should have a clear understanding of exactly what has been said. They should be prepared to discuss and explain the questions and misconceptions which follow. Some may wish to refresh their medical knowledge by consulting a good up-to-date pharmacology textbook, but this is an individual matter, of course.

We are not in a good position to judge the educational requirements of all our readers — they vary considerably. But there is an implied obligation that an official publication present something on policy, from time to time, when it merits particular attention and forms a basis for newly implemented programs and approaches to treatment. We appreciate CAPT Hansen's letter, and hope our readers will continue to acquaint us with their needs and desires. Such communications enhance our responsiveness.


To the Editor: I would like to comment on one of the statements made in a recent letter to the Editor of U.S. NAVY MEDICINE. Specifically I refer to the letter of CDR McDermott, Jr., MC, USN, on page 32 of the October issue. I cannot agree that confusion of priorities exists concerning the dual role of a naval officer and a physician. I cannot agree that a physician "is first and foremost a naval officer and secondly a physician." During flight surgeon training in Pensacola a line Captain made this same remark and I recall that

the entire group was immediately alienated during their first week in the Navy.

It seems obvious that if my primary goal had been to become a naval officer, I would have entered the Navy upon graduation from college. Rather, I decided to become a physician and pursued five more years of postgraduate education. I have been well-trained and have come to think, act and feel as a physician, and my overwhelming responsibility is to conduct myself accordingly. I resent anyone who tells me that I am first and foremost a naval officer. The vast majority of young physicians in the Navy with whom I am acquainted feel as I do, and it seems counterproductive to espouse such an unrealistic concept.

Equally important, I feel, is that if a physician thinks of himself primarily as a naval officer and secondarily as a physician, this attitude is quite clearly perceived by those enlisted men that he treats. In addition to strictly medical problems, many enlisted men come to a physician for personal and job-related problems. Some of these men obviously relate to me as a superior officer and with quite apparent inhibition, which prevents adequate communication. As simple a gesture as expressing my desire to be called "Doctor" rather than "Sir" has often had dramatic results in improving the doctor-patient relationship. Just as a line O-6 can prevent the development of a satisfactory doctor-patient relationship by acting as a superior officer rather than as a patient, so the medical officer can also do by relating to an E-1 as an officer rather than as a physician.

I certainly realize that being a naval officer and being a physician are not mutually exclusive, but I am, and will remain primarily a physician and secondly an officer. This philosophy enables me to provide the best medical care of which I am capable, which is in essence the only reason for my being in the U.S. Navy.

LT Jeffrey R. Woodside, MC, USNR
Patrol Squadron Thirty One
NAS Moffett Field, Calif. 



STAFF POSITIONS FOR MOs

In keeping with the previous announcement that descriptions of staff positions would be published in this journal, the following listing is offered.

It should not be construed that any or all of these positions will or will not become available in the summer of 1972. The only purpose of this information is to familiarize medical officers, in the rank of CDR or CAPT, with the types of positions which do become available. The Professional Division hopes to arouse interest among those officers who are planning their career development. For further information contact Professional Division, Medical Corps Branch, Code 317, Room 2222A; Navy Department, Bureau of Medicine and Surgery, Washington, D.C., 20390.

(1) *Fleet Medical Officer, COMSIXTHFLT*

The Sixth Fleet Medical Officer is responsible for the planning, supervision and administration of medical policies within the Sixth Fleet. Recommendations in the development of medical contingency plans for disasters afloat or ashore within the Mediterranean area are included in these responsibilities. Conducts administrative and preventive medicine inspections and holds medical briefings for all units deployed with the Sixth Fleet. Conducts on-site inspections of medical facilities ashore (allied military and civilian facilities as well as U.S. facilities) in order to provide COMSIXTHFLT up-to-date information regarding availability and quality of medical services throughout the Mediterranean. Evaluates and updates medical intelligence concerning shore medical facilities and problem areas in various Mediterranean countries.

Ensures that treatment and disposition of patients throughout the Sixth Fleet are carried out with expediency to provide the best available care with a minimum

loss of man-hours. This includes observation of the aeromedical evacuation system which requires liaison with shore commands as well as all units of the Fleet. Must be aware of impending health problems within the Fleet and ashore at all times.

The billet of Sixth Fleet Medical Officer requires a senior medical officer with administrative experience as well as professional expertise.

(2) *Fleet Medical Officer, COMSEVENTHFLT*

Commander Seventh Fleet maintains operational control of U.S. Navy forces afloat in a geographical area bounded by latitude 60E to latitude 160E. The Commander and Joint Staff are embarked in the Command Ship USS OKLAHOMA CITY (CLG-5), homeported in Yokosuka, Japan.

The medical officer assigned to the Staff of COMSEVENTHFLT is designated Fleet Medical Officer with advisory and coordination responsibilities to the Fleet including: shipboard health and sanitation; medical sections of OPLANS, OPORDS and General War Plans for casualty care, evacuation and transportation; medical logistics for forces afloat; shipboard medical readiness levels and standards; liaison with type commanders, subordinate Fleet commands and shore support facilities; and collection of medical intelligence information affecting support needs and capabilities in operational areas. In addition to technical responsibilities, the Fleet Medical Officer participates actively in COMSEVENTHFLT foreign port protocol visits.

(3) *Fleet Medical Officer, CINCUSNAVEUR*

Advises the Deputy Chief of Staff for Logistics and Management in medical matters. Develops policies and programs for medical activities in the CINCUSNAVEUR/USCOMEASTLANT areas. Evaluates current and future requirements for medical services, and initiates necessary staff action to provide or develop required

services or facilities. Conducts liaison and other coordinating action with U.S. commands in the area for implementation of medical cross-servicing agreements. As necessary, assists in inspections of USNAVEUR/EASTLANT medical activities. Serves as Navy member, USEUCOM Medical Coordinating Committee and USEUCOM Joint Whole Blood Control Agency.

Advises the ACOS for Logistics in medical matters. Exercises general supervision over activities of CINC-USNAVEUR/USCOMEASTLANT medical facilities, including hospitalization, medical evacuation, decedent affairs, and preventive medicine programs. In coordination with the Surface Logistics and Development Plans Officer, and the FMF Logistics Plans Officer, develops and updates medical portion of USNAVEUR logistics plans. Adjudicates bills submitted for civilian medical care of active duty members. ㄹ

MEDICAL BOARDS

A year ago BUMED queried certain medical commands concerning proposed changes to Medical Board procedures. The response was overwhelming in support of the proposal. Additionally, many other excellent suggestions were submitted. As in any change of such magnitude, not every suggestion could be implemented. At long last the new Medical Board procedures are being effected as of 1 January 1972. A review of some of the major changes is presented here.

Major Changes

1. A new Medical Board Cover Sheet includes significant information for Automatic Data Processing. Many items of negligible value were deleted.

2. Composition of Medical Boards is reduced from three to two Medical Corps officers of the Armed Forces or Public Health Service. One of the Board members should be a senior medical officer with detailed knowledge of Medical Board procedures and current disposition regulations. The other must be the medical officer primarily concerned with the patient's care. Whenever possible, the Senior Member of the Board should be the Chief of Service or his designated representative. If desired for training purposes, a third medical officer may be added as an additional member of the Board. Similarly, when there are dental aspects to the case, a dental officer should be added. When there is a question of mental competency, the membership shall include a psychiatrist. Reserve representation is required when the party before the Board is a reservist.

3. A member need not be admitted to the sick list

solely for the purpose of consideration of his case by a Medical Board.

4. The requirement for preparation of a Medical Board Report for patients who have been on the sick list continuously for six months is deleted.

5. Commanding Officers of all naval hospitals and certain other designated treatment facilities are delegated authority to act, without departmental review, on the following Medical Board Reports provided all parties concerned are in agreement and there is no disciplinary action pending:

a. Cases in which the Board recommends that an enlisted member be placed on an initial period of six months or less of limited duty. Subsequent periods of limited duty for the same condition will require departmental approval.

b. Cases in which an enlisted member is sent to full duty without any physical, geographic, or assignment limitation.

6. The cases of members of the naval service who refuse to submit to recommended medical, dental or surgical treatment for a remedial defect or condition which has interfered with the performance of duty and where, following prescribed therapy, the member is expected to be fit for full duty, shall be forwarded direct to the Central Physical Evaluation Board except where the Convening Authority desires that the case be referred for Departmental review.

7. The requirement that the member appear before the Board in person is deleted; however, the Board's report and recommendation shall be discussed with the member provided it is considered by competent medical authority that such discussion will not adversely affect his health. His signature on the NavMed Form 6100/2 or 6100/3 continues to be required.

Medical Boards prepared in accordance with or under the new procedures outlined in Section III, Chapter XVIII of MANMED will be carefully monitored by BUMED with a view toward further streamlining and/or changes. However, it is incumbent on all convening authorities and medical board members to be thoroughly familiar with the new procedures. It is extremely important that the information contained on the cover sheet be absolutely accurate and that the body of the report contains a true and complete picture of the present state of health of the member being reported upon. Toward this end the Board shall require and examine such records in the case as are necessary to formulate a considered conclusion regarding the member's present state of health and the required recommendations. The body of the report shall present, in narrative form, all pertinent data concerning each complaint, symptom, disease, injury or

disability presented by the member which causes or is alleged to cause impairment of health. The facts should be presented briefly and concisely. Emphasis must be placed on the detailed recording of each physical disability in such a manner that subsequent evaluation by adjudicative bodies can be made on the basis of the Board's report.

Narrative Section of Report

The narrative section of the Board's report should be no more and certainly no less than a well-written narrative summary and should answer the following questions:

- (1) Why did the patient enter the hospital?
- (2) What were the pertinent physical findings?
- (3) What were the results of pertinent laboratory and X-ray tests?
- (4) What medical or surgical treatment was rendered?
- (5) What is the current physical condition of the patient at the time the Medical Board report is written?
- (6) What is the prognosis and recommendation of the Board concerning the disposition to be effected in the case?
- (7) What instructions were given to the patient, such as medication to be taken, physical restriction, etc.?
- (8) Have all conditions and abnormalities been recorded?

Since the Medical Board is the heart of the Navy's disability evaluation system, incomplete, inaccurate, misleading, or delayed reports wreak havoc and may result in an injustice to the member or the Government. The history of his illness; objective findings on examinations; results of X-ray and laboratory tests; reports of consultations; and subjective conclusions with the reasons therefor, are essential to support findings and recommendations. The mere presence of an impairment does not, of itself, justify a finding of unfitness because of physical disability. In each case considered, it is necessary to correlate the nature and degree of physical disability which is present with the requirements of the duties which the member reasonably may be expected to perform by virtue of his office, grade, rank, or rating.

Other Aspects

Apparent contradictions in the records, such as disagreement with a report of consultation, should be thoroughly explained. The condition of a patient following therapy, his response thereto, the degree of severity of his disease or injury, and, when appropriate, their effect on his functional ability must be described in detail.

If a previous Medical Board Report has been prepared, it is not necessary to repeat the detailed information contained therein pertaining to past history. In such cases, attention may be invited to the previous report and the description of the present illness restricted to the interval history and current pertinent data.

Any facts which are not a matter of record or of personal knowledge to a member of the Board, but which are based on the member's own statement, should be recorded as "according to the member's own statement." Medical-social reports must be held in the strictest confidence, should not be shown to the member, and information derived therefrom shall not be entered in the Board's report. Such data are obtained primarily for the benefit of the patient in diagnosis and treatment, and may be utilized for the purpose of further interrogation of the patient if pertinent. Any additional history so obtained from the patient, or from other sources contacted as a result of "lead information," may be incorporated as a part of the case history.

A member of the naval service may not demand as a "right" that a Medical Board be held in his case. Generally, only those cases which present aspects of a problematic or controversial nature, those cases in which Medical Board action is required by existing regulations, and those cases referred by competent authority shall be evaluated by a Medical Board prior to disposition.

Unless otherwise directed by competent authority, patients who are returned to full duty without limitation, and those who require transfer to another Armed Forces hospital prior to final disposition, should not ordinarily be considered by a Medical Board prior to such disposition.

Mandatory

A Medical Board is mandatory in the following situations:

- (1) When a member is temporarily unfit but return to full duty is anticipated, and it is desired to follow the patient for a short period of time before final disposition is made, i.e. "limited duty."
- (2) Patients who refuse medical, dental, or surgical treatment.
- (3) All cases in which PEB referral is the indicated disposition.
- (4) When continued military service would probably result in an inordinate amount of hospitalization or other close medical supervision; or would be likely to aggravate the existing condition.

(5) When the nature of the member's defect clearly precludes further military service.

(6) Cases involving questions of mental competency.

(7) When the member's condition is such as to require permanent assignment limitation, i.e. geographic, within U.S., etc.

(8) A member of the Naval Reserve or Marine Corps Reserve, on active duty for training of 30 days or less, who becomes ill or contracts disease in line of duty while he is on active or performing inactive duty training, and who requires hospitalization and incident transportation and subsistence which may extend beyond ten weeks after the member is released from active duty.

Further guidance concerning various categories of cases where referral to a Medical Board may be appropriate, or is required, are outlined in Articles 18-12 through 18-20.

The revised Medical Board Report Cover Sheet, NavMed 6100/1 has been introduced into the forms publications segment of the Defense Supply System and should be requested in accordance with current directives, citing stock number 0105-208-1001.

Questions or recommendations concerning Medical Board procedures may be forwarded to BUMED, Attention Code 33. Telephonic inquiries may be directed to Autovon 22-24451, 22-24465, or 22-24461.—Code 33, BUMED. ☞

HEALTH BENEFITS COUNSELORS (HBCs)

The Health Benefits Counselor at naval hospitals is responsible for providing the hospital staff with accurate and timely information concerning the health benefits that are authorized and available to active duty dependents, retired members and their dependents, and survivors of deceased active duty and retired members. In particular, he must be vitally aware of and concerned with, the interrelationships between care in military medical facilities and care from civilian sources. In this regard, the HBC must become personally involved and

concerned with counseling individual beneficiaries as to the availability of medical benefits from naval sources, other federal sources, and non-federal sources. Such counseling services would typically include: (1) benefits entitlement, (2) resolution of claim problems, (3) referring beneficiaries requiring the assistance of the Navy Relief Society, (4) assisting the physician and patient in determining and coordinating the most appropriate and economical method of managing the patient's clinical case and, (5) developing and maintaining information in coordination with BUMED pertaining to the sources and availability of specific medical capabilities at area uniformed services medical facilities as well as benefits available under programs such as Social Security, Medicare, Veterans Administration, etc.

In addition to those functions integral to the overall medical management of individual cases, the HBC has a continuous educational and informational role to fulfill. Examples of this aspect of the HBC's many-faceted role are: participation in staff conferences and in-service training programs; and presentations before formal and informal groups, during which the general characteristics of available benefits, methods and procedures of operation of various health care programs, are explained.

Other duties the HBC would be expected to accomplish include: (1) development of a vigorous and ongoing informational program that is most ideally suited to the particular area and population served, (2) utilization and dissemination of informational material provided him, (3) acting as the principle consultant to Personal Service Centers on the entire health care spectrum, (4) providing support and assistance to other commands within the local area and, (5) assisting the District Medical Officer, when appropriate, in developing and administering the HBC Program within the district.

The interrelationships between the entire Medical Department and HBCs are many. It is evident that HBCs can render assistance to all members of a hospital staff.—Code 39, BUMED. ☞

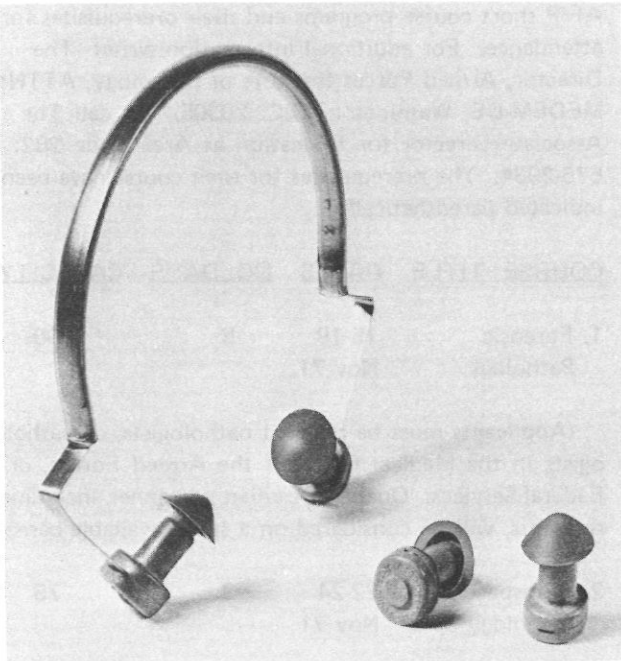
CURRENT TOTALS FOR RVN AWARDS

For service in the Republic of Vietnam, Medical Department personnel have earned three Medals of Honor, 29 Navy Crosses, 129 Silver Stars, 60 Legion of Merit Medals, 11 Navy and Marine Corps Medals, 406 Bronze Stars, 681 Navy Commendation Medals, 664 Navy Achievement Medals and 7 Meritorious Service Medals.

In addition to the above, 153 Air Medals, an estimated 4,628 Purple Hearts, and numerous assorted foreign awards have been presented. (Courtesy of CDR W.M. Leadford, MSC, USN; The Administrative Officer to The Medical Officer, U.S. Marine Corps (Code AM), Headquarters U.S. Marine Corps, Washington, D.C.) ☞

EAR PROTECTION DEVICE

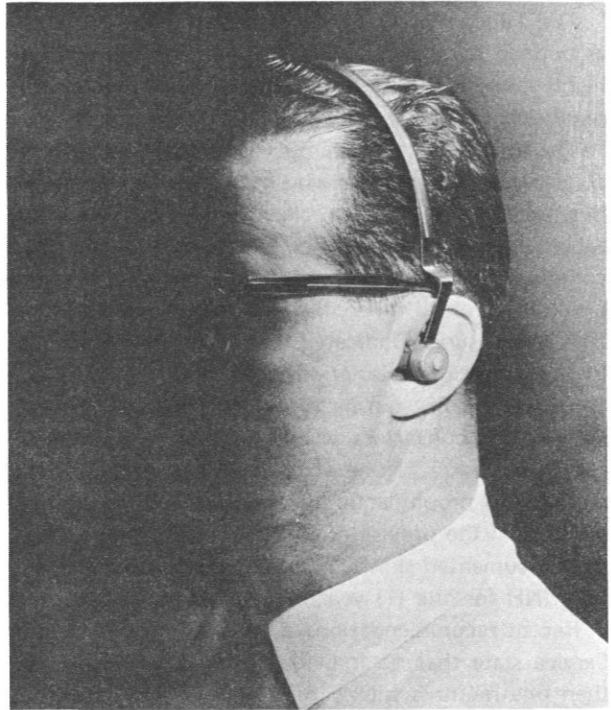
A recently standardized new hearing protective device is now available to increase noise attenuation from two to ten dB for frequencies between 1000 Hz and 6000 Hz. The increase in attenuation lies in the frequency range most critically related to noise induced hearing loss. The device is officially known as Plug, Ear, Hearing Protection, universal size, single flange, FSN 6515-181-8058. The cost is \$3.00, somewhat less than ear muffs, and somewhat higher than plugs which have an annoying tendency to become lost when needed most.



Improved Hearing Protectors, FSN 6515-181-8058.

Because of the universality of applicability of this type of ear protector, its routine use is highly recommended. It can be worn under a battle helmet, under ear muffs for additional protection on flight decks, with officer and enlisted hats, and in engine rooms where heat and humidity mitigate against the wearing of muffs.

The size and shape of this device permit the ready wearing of it about the neck when not in place for actual use, with instantaneous and easy placement for immediate use if desired. It provides aural protection that is equal or superior to that offered by other available devices. It combines maximum hearing protection with comfort and safety. Individual issue of



Hearing Protector in place.



this device to all Navy and Marine Corps personnel who are subjected to excessive noise is strongly recommended.—CAPT George R. Hart, MC, USN; Executive Officer, Nav Hosp Annapolis, Md. (Photos by courtesy of the manufacturer, H.E. Douglass Engineering Sales Co., Burbank, Calif. 91505.)


TUBERCULOSIS CONTROL PROGRAM

The Tuberculosis Control Program of the U.S. Navy as defined by BUMEDINST 6224.1 series is a model highly praised for its thoroughness and sound epidemiological and clinical rationale.

The basis of this program is: (1) annual skin test for all active duty personnel who have been skin test negative previously, (2) annual chest X-ray examination for tuberculin positive personnel, (3) close follow-up of all contacts of an active case of tuberculosis, and (4) chemoprophylaxis of all tuberculin skin test converters.

A recent survey indicated that 21 of 42 admissions to the tuberculosis isolation ward at Naval Hospital, San Diego, Calif., during the years 1969-1970, were known PPD converters several months before their actual admission. None of these 21 personnel was the recipient of prophylactic isoniazid therapy. In accordance with the provisions of BUMEDINST 6224.1 series, documented skin test converters must be treated with INH for one (1) year.

Recent recommendations by the U.S. Public Health Service state that no individual should receive more than one month's supply of INH at a time, and that monthly monitoring for development of drug side effects, especially hypersensitivity resulting in hepatitis-like disease, should be carried out by clinical means. Routine monitoring by laboratory tests for liver dysfunction is not recommended. If clinical signs and symptoms appear, INH must be discontinued and appropriate evaluation performed. Isoniazid-associated liver disease is usually reversible after discontinuance of the drug.

The number of tuberculosis cases continues to decline; we must maintain our vigilance and attack the earliest manifestations of tuberculous infection.—Code 72, BUMED. 

AFIP POSTGRADUATE SHORT COURSES

The Director of the Armed Forces Institute of Pathology has released the schedule of postgraduate short courses in continuing education for the remainder of Fiscal Year 72. The total combined course capacity of the FY 72 short course program at the AFIP is over 2,600. The total spaces allocated to the military and federal agencies is only 861. The remaining 1,739 spaces are open to individual applicants. Unless members of the military and federal agencies take advantage of these "open" spaces, qualified private citizens are accepted for attendance.

Members of the naval service who wish to apply for

any of these courses described below should consult BUMEDINST 1520.8 for application procedures. These regulations are usually followed if the individual desires TAD funding support.* If the individual's local command has available TAD funds, the CO is the final approving authority for TAD funding. If no TAD funds are available, the individual may wish to obtain permissive TAD or administrative leave and apply directly to the AFIP for acceptance. Applicants will be notified by letter of their acceptance or non-acceptance approximately four weeks prior to the starting date of the course. Applications WILL NOT be considered if received later than four weeks prior to the starting date of the course.

Provided below is a list of the remaining FY 72 AFIP short course programs and their prerequisites for attendance. For additional information write: The Director, Armed Forces Institute of Pathology, ATTN: MEDEM-DE, Washington, D.C. 20305. Or call The Associate Director for Education at Area Code 202: 576-2934. The prerequisites for each course have been indicated parenthetically.

<u>COURSE TITLE</u>	<u>DATES</u>	<u>NO. DAYS</u>	<u>CAPACITY</u>
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1. Forensic Pathology	15-19 Nov 71	5	100
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(Applicants must be resident pathologists, or pathologists in the Medical Corps of the Armed Forces, or Federal Services. Qualified civilian personnel, including residents, will be considered on a space available basis.)

2. Aerospace Pathology	22-24 Nov 71	3	75
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(Applicants must be members of the Medical Corps of the Armed Forces or Federal Services who are military residents in aviation medicine, pathologists, or medical officers with a special interest in this area. Qualified civilian personnel may also apply.)

3. Introduction to Electron microscopy	29 Nov - 3 Dec 71	5	50
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(For military medical personnel, preferably military pathologists. Others will be considered on a space-available basis.)

*Procedures outlined in BUMEDINST 1520.8 are required for Radiologic Pathology, Orthopedic Pathology, and Otolaryngology Basic Science Courses.

COURSE TITLE	DATES	NO. DAYS	CAPACITY
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4. Application of Histochemistry to Pathology	10-14 Jan 72	5	50
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(Applicants must be members of the Medical, Dental, Veterinary or Medical Service Corps of the Armed Forces or Federal Services with an interest in this specialty. Qualified civilian personnel may also apply.)

5. Genitourinary Pathology	24-28 Jan 72	5	85
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(Applicants must be members of the Medical Corps who are pathologists, surgeons or urologists qualified for the Board examination. Qualified civilian personnel limited to space available.)

6. Neuropathology	31 Jan - 4 Feb 72	5	300
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(Applicants must be members of the Medical, Dental or Veterinary Corps of the Armed Forces or Federal Services with a special interest in neuropathology. Qualified civilian personnel may also apply.)

7. Orthopedic Pathology (Military Pathologists)	13-19 Feb 72	5	40
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(Doctoral degree. Preference will be given to pathologists. Applicants must be members of the Medical, Dental or Veterinary Corps in military hospitals. Applicants from other federally operated hospitals on a space available basis.)

8. Ophthalmic Pathology	28 Feb - 3 Mar 72	5	100
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(Applicants must be members of the Medical Corps of the Armed Forces or Federal Services who are either board certified, board qualified or well advanced in pathological anatomy or ophthalmology. Qualified civilian personnel may also apply.)

9. 19th Annual Course in Oral Pathology	6-10 Mar 72	5	150
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(Applicants must be members of the Medical or Dental Corps of the Armed Forces or Federal Services. Qualified civilian personnel may also apply.)

COURSE TITLE	DATES	NO. DAYS	CAPACITY
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10. 12th Annual AFIP Lectures	27-31 Mar 72	5	400
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(Applicants must be members of the Medical Corps of the Armed Forces or Federal Services who are board certified or board eligible in pathology. Qualified civilian personnel may also apply.)

11. Cardiovascular Pathology	5-7 Apr 72	3	140
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(Applicants must be members of the Medical Corps, with a special interest in this field. Qualified civilian physicians may also apply.)

12. Otolaryngology Basic Science Course	10 Apr - 19 May 72	30	20
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(Applicants must be members of the Career Medical Corps of the Armed Forces who are currently in otolaryngology residencies.)

13. Pathology of the Aquatic Environment	19-21 Apr 72	3	100
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(Applicants must be officers of the Armed Forces or Federal Services, including medical officers, pathologists, submarine medical officers, preventive medicine officers, biomedical science officers, and diving officers. Other military officers responsible for investigation of accidents or for research in this field may apply. Qualified civilian medical personnel on a space available basis.)

14. Accident Pathology	8-10 May 72	3	100
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(Applicants must be resident pathologists, or pathologists, in the Medical Corps of the Armed Forces, or Federal Services. Military officers responsible for the medicolegal investigation of accidents or for research in this field, will also be accepted. Qualified civilian personnel on a space available basis.)

15. Radiologic Pathology	3 Jan - 25 Feb 72	39	46
	28 Feb - 28 Apr 72	44	49
	1 May - 30 June 72	44	49

(Applicants must have one year of training in diagnostic radiology in an approved radiology residency and have a letter of recommendation from the chairman of his program. Physicians in the Armed Forces, Federal Services civilian physicians will be considered. No applicant is eligible within the three-month period prior to the time he is scheduled for the written or oral examination of the American Board of Radiology.)
— Received for publication 5 Nov., PIA Officer, AFIP.

SURGICAL SYMPOSIUM

The Gary P. Wratten Surgical Symposium will be sponsored by the Walter Reed General Hospital on 22 through 24 March, 1972. An outstanding program will include recent advances in the fields of general surgery and the surgical specialties, new advances in clinical research and new procedures and techniques. Civilian surgeons of national prominence are included on the program.

The Symposium is open to surgeons of the Army, Air Force, Navy, Veterans Administration, Public Health Service and civilians, particularly from the Reserve Corps and National Guard. Social events will include the wives.

All are urged to make application for presentation of papers. Presentations will be limited to 15 minutes. Case reports limited to five minutes, will also be accepted. Submit application for presentation of papers in the following format: Title of paper; Author(s) name(s), address(es); Name of author who will present paper; Proposed length of presentation; Other suggestions for inclusion in program; and Abstract of paper in 200 words or less.

Make your plans to attend and send application to participate in program immediately to: COL Thomas G. Nelson, MC, USA; Chief, Dept. of Surgery, Walter Reed General Hospital; Washington, D.C. 20012.

AMA MEMBERSHIP

According to the present Constitution and Bylaws of the American Medical Association, which was revised for 1972, there are now two basic types of membership: Active Members, and Special Members. Further classification of Active Members into Regular Members or Direct Members has been specified. Direct Members include three subgroups of members: Service members, Physicians employed by Federal agencies, and Hospital Interns and Residents. Special Members are subgrouped as Associate, Affiliate and Honorary members. The

following outline should help to clarify the complicated membership classification.

I. ACTIVE MEMBERS

A. *Regular Members* — Members of a state association who hold the degree of Doctor of Medicine or Bachelor of Medicine, or who hold an unrestricted license to practice medicine and surgery, and are entitled to exercise the rights of membership in their state associations, including the right to vote and *hold office*, as determined by their state associations. (A member temporarily in the Armed Forces, regardless of local dues exemption, for the period beginning 1 Jan or 1 Jul following the date of entrance into the service, may be excused from payment of dues by the Board of Trustees and remain eligible for Regular AMA membership under certain circumstances. Other exceptions apply to certain physicians who are retired, disabled, or over 70 years of age.)

B. *Direct Members*

(1) *Service Members* — If approved by the Judicial Council and nominated by their respective Surgeon General, regular and reserve commissioned medical officers who hold the degree of Doctor of Medicine or Bachelor of Medicine or Doctor of Osteopathy, on extended active duty (more than two years) with the U.S. Army, U.S. Navy, U.S. Air Force or U.S. Public Health Service, are eligible to become Service Members. These shall retain membership as long as they are on active duty and thereafter if retired in accordance with the Federal Laws and not eligible for membership in a county and state society. Service Members have the same rights and privileges as Regular Members, shall not be required to pay dues, and shall not be entitled to receive any publication of the AMA except by subscription.

(2) *Physicians Employed by Federal Agencies* — full time civilian physicians employed by all Federal agencies including the VA, who are ineligible for membership in a county and state society, are generally treated as above in B (1).

(3) *Hospital Interns and Residents* — eligible for the same rights and privileges as Regular Members under certain circumstances, and pay such dues as are fixed for them by the House of Delegates.

II. SPECIAL MEMBERS

A. *Associate Members* — may not vote or hold office in the AMA, but may attend meetings of the Scientific Assembly; are not required to pay membership dues and shall not be entitled to receive any AMA publication except by subscription. Included here are: (1) Those members of the state associations who are ineligible for Regular AMA membership and who hold the degree of Doctor of Medicine or Bachelor of Medicine;

and (2) Members of the Armed Forces on temporary duty (two years or less). An Associate Member must be certified for enrollment to the Executive Vice President of the AMA by the secretary of the state association in the jurisdiction of which he conducts his professional activities, or by his Surgeon General. All such Associate Members may be disapproved for membership by the Judicial Council.

B. Affiliate Members — not required to pay membership dues, enjoy privileges of the Scientific Assembly without the right to vote or hold office, and not entitled to receive AMA publications except by subscription. Nominations for class (4), (5) and (6) must also be approved by the appropriate county and state medical society. All must be approved and nominated by the Judicial Council.

(1) Physicians who are members of the national medical societies of foreign countries.

(2) American physicians, located in foreign countries or possessions of the U.S. and engaged in medical missionary, educational or philanthropic labors.

(3) Dentists who hold the degree of D.D.S. or D.M.D., who are members of the ADA and their state and local dental societies.

(4) Pharmacists who are active members of the APA.

(5) Teachers of medicine or of allied sciences who are U.S. citizens and not otherwise eligible for membership.

(6) Allied scientists and others who have attained distinction in their fields, who are not otherwise eligible for membership.

C. Honorary Members — Prominent physicians of foreign countries who attend a convention, under certain circumstances. 🍷

ALNAV (67) WAGE-PRICE FREEZE/MILITARY PAY

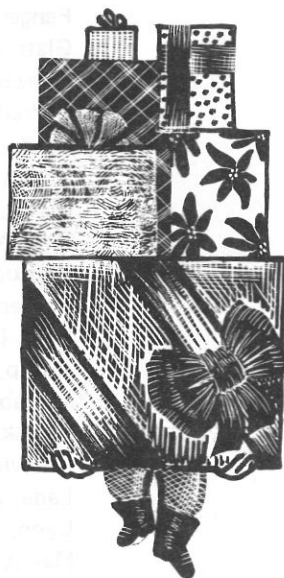
ALNAVs 51 and 54 announced suspension of longevity increases in certain basic, special, and incentive pays effective 1 Sep. 1971 due to the wage/price freeze. ALNAV 57 announced the freeze of new entitlements and pay and allowance increases contained in P.L. 92-129. These suspensions were removed effective 14 Nov. 1971. The following rules apply:

a. Members who achieved a longevity step on or after 14 Nov. 1971 are entitled to an appropriate pay increase on date of achievement.

b. Members who achieved a longevity step during the period 1 Sep. — 13 Nov. 1971 which was frozen, are entitled to an appropriate pay increase effective 14 Nov. 1971. They are not entitled to a retroactive pay increase for any period prior to 14 Nov. 1971.

Interim Change 57 to DODPA (Dept. of Defense Pay Manual) furnished information concerning rates of basic pay, BAQ, special pay for optometry officers and allowance for recruiting expenses resulting from enactment of P.L. 92-129. The new or increased pay and/or allowances set forth in that change were effective for all purposes on 14 Nov. 1971. No retroactive increases are authorized for any period prior to 14 Nov. 1971.

For Class Q Allotments, the difference in BAQ rates for the period 14-30 Nov. 1971 were credited on the member's pay record and paid directly to him. New allotment authorizations must be submitted in accordance with applicable regulations to support increased BAQ credit beginning with the month of December 1971. 🍷



AWARDS AND HONORS

Silver Star Medal

Moos, James A., HM2, USN

Legion of Merit

Norris, Frank T., RADM, MC, USN

Reed, Marvin E., HMCM, USN

Bronze Star Medal

Alexander, Glenn A., HM2, USN

Bruner, Robert W., Jr., HM3, USN

Butler, William D., CDR, DC, USN

Craig, Donald R., LCDR, MSC, USN

Jones, Ronnie B., HM2, USN

Kelly, James C., LCDR, DC, USN

Young, David G., HM3, USN

Meritorious Service Medal

Alexander, Charles E., Jr., CAPT, MC, USN

Miller, Charles H., CAPT, MC, USN

Mohler, Clarence B., CDR, MSC, USN

Osborne, David P., RADM, MC, USN

Shiller, William R., CDR, DC, USN

Wilson, Almon C., CAPT, MC, USN

Joint Service Commendation Medal

MacPherson, Roderick F.C., CAPT, MC, USN

Navy Commendation Medal

Adams, Charles E., HMC, USN

Allen, Cleo R., CAPT, MSC, USN

Anderson, William H., III, LT, DC, USN

Berube, Robert R., HMC, USN

Broun, William A., HM2, USN

Brown, Gary D., LCDR, MSC, USN

Clark, Thomas E., HMC, USN

Coffey, Ronald N., HM3, USN

Crossman, Jon S., HM2, USN

Cuilty, Henry, DT3, USN

Fay, Marion K., HMC, USN

Gonzalez, Regino, HM1, USN

Grace, Eldon G., DT1, USN

Green, Marvin L., HMC, USN

Hume, Gerald E., HM3, USN

Hutto, James D., Jr., HM3, USN

Ivie, William D., HM1, USN

Liles, James E., HMC, USN

Lutes, Gregory G., HM3, USN

Marascullo, Leonard C., HM3, USN

McCune, Ronald M., HM1, USN

Montemayor, Alfredo R., DT1, USN

Navy Commendation Medal (Con.)

Mooney, William D., HMC, USN

Motti, Robert E., HMC, USN

Museles, Melvin, CAPT, MC, USN

Norvell, Robert D., LCDR, MSC, USN

O'Brian, Daniel J., HM3, USN

Ripley, Harold A., HMC, USN

Rodgers, William B., HMC, USN

Schenk, Patrick W., LT, DC, USNR

Sousa, Stanley K., HM3, USN

Stahl, Robert W., HM1, USN

Swift, John H., HM3, USN

Taylor, Richard E., HMCS, USN

Trone, James N., CAPT, MC, USN

Wells, John E., CDR, MSC, USN

Williams, Thomas W., HMC, USN

Navy Achievement Medal

Adamson, Raymond M., HMC, USN

Anthony, William R., DT3, USN

Austin, Robert D., HM3, USN

Bond, Rex N., HM3, USN

Boucher, Alvin L., HMC, USN

Brewington, Leslie G., Jr., HM1, USN

Brown, Nathan, HM1, USN

Clabaugh, Leo B., HM3, USN

Clise, Allan J., HN, USN

Darks, Don T., DT3, USN

Davis, Joe E., HM1, USN

Delaney, John J., Jr., HMC, USN

Farnham, Willard H., HM1, USN

Farwick, Gregg W., LT, DC, USNR

Fenger, Ralph V., HM2, USN

Glatt, Lawrence G., DT1, USN

Gonzales, George A., HM3, USN

Gorrell, Jerry L., HM3, USN

Grady, Timothy E., HM3, USN

Graves, Clifton H., HM3, USN

Guiles, Clarence W., HMC, USN

Hall, Arthur L., DT1, USN

Hancock, Michael A., DT1, USN

Hansen, Andrew M., LT, DC, USNR

Heid, Daniel B., HM3, USN

Jessup, Patrick N., HM3, USN

Johnson, Thomas G., HN, USN

Kevicki, Jess L., DT2, USN

Knowles, James N., HM1, USN

Lane, Loyd R., HM3, USN

Lynn, John R., HM1, USN

Massey, Thomas L., HMC, USN

Navy Achievement (Con.)

McCune, Neil E., HM1, USN
Miller, Thomas Y., II, HM3, USN
Morgan, Albert D., Jr., HM2, USN
Morrison, Richard F., HM1, USN
Muma, Robert D., DTC, USN
Murphy, John D., HM1, USN
Nance, Eldon J., DT2, USN
Phillips, Carl L., HN, USN
Primmer, Earnest C., LT, DC, USNR
Redenbaugh, William F., HM3, USN
Renevier, Charles D., HM3, USN
Sappington, Robert M., HM3, USN

Sather, Martin L., HM2, USN
Seibel, Joseph R., HM1, USN
Serota, Michael J., DT2, USN
Shannon, Kenneth R., HMC, USN
Smith, Craig A., HM2, USN
Smith, James P., DTC, USN
Stocks, Ronald W., HM2, USN
Theodos, Peter E., HMC, USN
Truman, Patrick A., LT, MSC, USN
Webb, Larry D., DT1, USN
Wesley, Louis F., HM3, USN
Wind, James N., HM3, USN ㊦

AWARD FOR NAVAL RESERVE DENTAL COMPANY 9-32



In recognition of their outstanding contributory support to the Marine Corps Automated Services Center, of Kansas City, Mo., Naval Reserve Dental Company 9-32 of Kansas City, Mo., was awarded the "Most Outstanding Dental Company Plaque" at the Naval Reserve Dental Symposium on 11 Oct., 1971. The Dental Company manned the Mobile Dental Unit No. 4 for 55 days while on their annual active duty for training, providing the only dental care available to the active forces in the area. CAPT Thomas D. Schaad, DC, USNR-R (right), Commanding Officer, displays the annual award plaque in photo. The plaque was presented by CAPT Paul E. Farrell, DC, USN (left) of the Personnel Branch (Reserves), Dental Division, BUMED, at the 112th Annual Session of the American Dental Association in Atlantic City, N.J. ㊦

✠ In Memoriam ✠

CAPT Walter M. Anderson, MC, USN (Ret.) died 10 Oct. at the Naval Hospital, Portsmouth, N.H. He was born 23 Oct. 1889 in Wapakoneta, Ohio. Dr. Anderson graduated from the Philadelphia College of Pharmacy and Science in 1912 and received his M.D. from Ohio State University College of Medicine in 1917. In April 1917, Dr. Anderson was commissioned Asst. Surgeon, USNR. He reported for active duty in May of that year and in Sept. 1917 accepted commission as Asst. Surgeon, USN. CAPT Anderson served aboard several naval vessels including the USS TENNESSEE, MELVILLE and MARYLAND. He also served at several naval hospitals in the U.S. — at Chelsea, Mass.; Newport, R.I.; San Diego, Calif.; and Great Lakes, Ill. From May 1941 to March 1942 he was Asst. Naval Attache, Special Naval Observer, American Embassy, London, and later served as Staff Medical Officer, Commander Naval Forces, Europe. Upon his return to the U.S. he was Executive Officer of the Naval Hospital, Brooklyn, N.Y. CAPT Anderson commanded the Naval Hospital, Portsmouth, N.H., from March 1946 to August 1947 and later served as Senior Medical Officer of the Naval Base and Shipyard at Portsmouth, N.H.

CAPT Anderson's numerous professional affiliations included the following: Diplomate, American Board of Internal Medicine; Fellow, American College of Physicians; Fellow, American Medical Association; Fellow, Royal Society of Medicine (London); Member, American Heart Association; and Member, Association of Military Surgeons of the U.S.

CAPT Anderson's name was placed on the Retired List in 1951. He is survived by two sons, Walter M. Anderson, Jr., and Donald R. Anderson; a sister; and a brother.

CDR George C. Fowler, DC, USN (Ret.) died 13 Oct. at the Potomac Valley Nursing Home, Rockville, Md. He was born 16 Dec. 1890 in Hyattsville, Md. CDR Fowler received his degree from Georgetown Dental College in 1914 and was a Navy reserve dental officer from 1915 to 1917. During WW I he was

serving aboard the USS COVINGTON when it was sunk by an enemy torpedo 1 July 1918. He later served aboard the USS MISSISSIPPI and assisted in the care and treatment of personnel wounded in the turret explosion. CDR Fowler's name was placed on the Retired List in 1946. He is survived by a daughter, Marian, and a son, George C. Fowler, Jr.

CAPT Walter W. Gilbert, MC, USN (Ret.) died of a ruptured aortic aneurysm on 27 Sept. in San Rafael, Calif. He was born 10 May 1899 in Albany, Ore. Dr. Gilbert received his M.D. from the University of Oregon Medical School in 1925 and engaged in private practice for 15 years prior to being commissioned LCDR, MC, USN at the outbreak of WW II. CAPT Gilbert served as Senior Medical Officer aboard the USS DARKE during the invasions of Iwo Jima and Okinawa. In 1952 he received a Master of Industrial Health degree from the Harvard School of Public Health and was Industrial Medical Officer at the Mare Island Naval Shipyard, San Francisco, for six years. He later served as Officer in Charge of PMU No. 5, San Diego, Calif. His name was placed on the Retired List in 1961. CAPT Gilbert is survived by his wife, Eleanor, and three sisters.

CAPT Warren E. Klein, MC, USN (Ret.) died 25 Aug. at North Broward Hospital, Pompano Beach, Fla. He was born in Ramsey, Tenn., on 21 May 1902. After receiving his M.D. at Tulane University Medical School, he was commissioned LT(jg), MC, USN, on 28 Jun 1929. Dr. Klein was designated a flight surgeon in Sept. 1942. During WW II, he served with the 3rd Marine Air Wing and aboard the USS ENTERPRISE. In 1952 he was assigned to the 1st Marine Air Wing serving in Korea. CAPT Klein was awarded the Legion of Merit with combat "V," the Navy Unit Commendation for service aboard the ENTERPRISE, and the Air Medal in recognition of his contribution to the air evacuation of front line casualties in Korea. His name was placed on the Retired List in 1957 and he established private medical practice in Pompano Beach. He is survived by his wife, Astrid; a son, COL David D. Klein, USAF; and a daughter. ☙

ERRATUM

Attention is invited to a misprint that appeared in LCDR Dasler's article on "Heat Acclimatization" in the November issue, page 29. In the second sentence under "Introduction," the word "Decreased" should have appeared (vice "Increased"). U.S. NAVY MEDICINE regrets the error. ☙

United States Navy Medicine

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Richard S. Wilbur, M.D. (center), Assistant Secretary of Defense for Health and Environment, visited the National Naval Medical Center (NNMC) in Bethesda, Md, for a briefing on the Medical Center in October 1971. Accompanying him on his tour were, from left to right: VADM George M. Davis, MC, USN, Surgeon General of the Navy; RADM Felix P. Ballenger, MC, USN, CO of NNMC, Bethesda; and CAPT Donald L. Custis, MC, USN, CO Naval Hospital, NNMC, Bethesda, Md. (PAO, NNMC, Bethesda, Md.)

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